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Theme Issue
Literacy in the 21st Century

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The Alberta Journal of Educational Research *Vol. XLIV, No. 2, Summer 1998, 119-119*

Literacy in the 21st Century: Introduction

The articles in this theme issue were presented as papers, panel discussions, and poster presentations at a conference sponsored by the Literacy in the 21st Century Research group (Faculty of Education, University of Alberta) in conjunction with the Literacy Coordinators of Alberta and the Alberta Association for Adult Literacy. The conference brought together literacy researchers and practitioners to share literacy research and exchange views from a multidisciplinary perspective.

Educational researchers no longer view literacy solely as a repertoire of reading and writing skills, but rather as a cultural, social, and political phenomenon. This broad view of literacy is reflected in the work of the Literacy in the 21st Century Research group. A research prospectus developed by the group notes the revolutionary changes in literacy along with the increasing diversity and complexity of Canadian society. The specific demands of different environments affect how people approach literacy tasks, and how people respond to these demands is influenced by diverse factors. As envisaged by the Research group, the literacy research agenda for the 21st century will focus on literacy for democracy and equality for all Canadians in an increasingly diverse society and on comprehensive programs that involve collaboration of educational, community, health, and other agencies.

The complexity and multidimensional nature of literacy is evident in both the individual papers and the papers as a whole. The research topics of the conference ranged from learning to read and write in schools to literacy in community and workplace contexts. The articles reflect multiple facets of literacy: basic, functional, scientific, information, and critical. Authors also portray the diverse faces of literacy learners, including those in ESL and Aboriginal contexts. They write about the challenges facing learners, teachers, researchers, companies, and community service providers. The articles challenge researchers and educators to rethink traditional notions about the nature of literacy learning and about who should be involved in researching and facilitating the literacy learning process.

We wish to acknowledge and express appreciation to the Faculty of Education, Advanced Education and Career Development, and the National Literacy Secretariat for their financial support of the conference and of this literacy issue of **ajer**. We also acknowledge and appreciate the contributions of all participants at the conference, both those who made presentations and those who engaged in dialogue related to the ideas presented.

We are particularly grateful to the following individuals who contibuted their time to review manuscripts for this issue of **ajer**: Jim Anderson, Mona Beebe, Jim Bell, Bob Bruinsma, Cynthia Chambers, Mary Clare Courtland, Mary Cronin, Mary Dayton-Sakari, Trevor Gambell, Herb Katz, Jenny Horsman, George Labercane, Carol Leroy, Rod McLeod, Robin Millar, Claudia Mitchell, Linda Phillips, Maurice Taylor, Adele Thomas, Audrey Thomas, Serge Wagner, Angela Ward, and Helen Woodrow.

Grace Malicky and Mary Norton

The Alberta Journal of Educational Research *Vol. XLIV, No. 2, Summer 1998, 120-134*

Margaret Hunsberger

Penelope Bailey

and

K. Alix Hayden
University of Calgary

The Diverse Faces of Critical Literacy: Only Knowledge or Also Social Action?

This article arises from work done in a graduate seminar on critical and cultural literacy. The key questions are: What does it mean to be literate? and What (in)justice is done in the name of literacy? They are first explored through two examples that were researched during the course (scientific literacy in schools and technological/information literacy in society) and then expressed in the resulting, and still evolving, conceptualization of literacy and its implications. We begin with the stance that literacy is typically placed somewhere along a continuum ranging from viewing literacy as a set of skills to viewing it as a basis for rational and ethical action. We conclude with the issue of transforming literacy critique into ethical action.

Cet article est issue des discussions d'un séminaire gradué sur l'alphabétisation critique et sur l'alphabétisation culturelle. Les questions clés sont: Quelle est la signification d'être alphabétisé? et, Quelle (in)justice commet-on au nom de l'alphabétisation? Ces deux questions se font sondées dans le contexte de deux exemples recherchées pendant un cours qui traitait de l'alphabétisation scientifique dans les écoles et de l'alphabétisation en information et en technologie dans la société. Ces deux questions dévoilent toujours des notions approfondies de la conceptualisation de l'alphabétisation et ses implications. Nous débutons l'article en situant l'alphabétisation sur un continuum qui, à un bout, perçoit l'alphabétisation comme une série d'habiletés (surtout cognitives) et, à l'autre extrémité, comme étant la fondation de l'action rationnelle et éthique. En conclusion, nous traitons de la notion de la transformation de la critique de l'alphabétisation comme étant une action d'éthique.

> Literacy is a two-edged sword. It can be repressive or liberating. (Hoyles, 1977, p. 29)

Educated persons, heavily reliant on literacy skills in daily life, usually unquestioningly assume that literacy is both necessary and desirable. It is hard to imagine life without it. But the specific effects of literacy of individuals and

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K. Alix Hayden is a liaison librarian at the University of Calgary where she teaches information literacy workshops that focus on information retrieval and the Internet. She is also working on her PhD in education, focusing on developing a theoretical framework for information literacy policies.

societies is a matter worth consideration. How is literacy liberating? Is it possible for it to be repressive, and if so, in what way?

Literacy is a heavily used term, with many meanings and implications. Therefore, it seemed useful to spend a term examining its political, personal, and practical effects. This was done through a graduate course "Critical Foundations in Literacy," which was taught by Margaret and in which Alix and Penny were students.

In this article we outline the nature of the course and the sort of questions with which we began; we then give exemplars of specialized literacies explored in order to show how fundamental questions about literacy and our obligations as educators kept returning for us. Finally, in reflecting on what we learned, we offer a representation of how we have come to think about literacy and the fascinating, troubling issues it raises. We hope that the heuristic model we have constructed enables the envisioning of new questions for research in individual literacies and new possibilities for the significance of literacy research.

The Course (Margaret)

The intent of this graduate course, offered in winter term 1997, at the University of Calgary was that together professor and students would explore some of the implications of literacy on both societal and individual levels. What does it mean to be literate? What (in)justices are caused by literacy? Many specialized literacies are currently considered important in our culture. What are the conceptualizations (or ideologies)—and hence the implications—of these terms? And particularly, What are our social and professional responsibilities with regard to literacy?

The first three sessions of the course laid the theoretical groundwork for thinking about literacy: a consideration of conceptual frameworks to guide our reading and discussion and the beginning of a consideration of the political aspects of literacy. In subsequent classes specialized literacies were examined (e.g., adult literacy, computer literacy, native literacy); in addition to those topics directed by the instructor, each student led one seminar in an area of particular interest. In general students came wishing to examine the potential meanings of various specific literacies with which they had come into contact in their professional lives as educators and which they were interested in exploring in their graduate research. But always the talk among us took into account the cultural and critical ramifications of positions held by the authors of articles we were discussing.

In any study of literacy it is conventional for readers or listeners to begin by asking for a definition of literacy and for authors or speakers to provide one. This is completely understandable given the many and slippery usages in vogue. However, in conceptualizing the course I wanted to avoid a situation where students felt required to write a definition or to defend a particular view. Rather, I wanted them to be not only free, but strongly encouraged to rethink constantly what is entailed, both explicitly and implicitly, in shifting and expanding understandings of literacy, its role, and its power.

Therefore, I began the course by offering students not a series of definitions, but two frameworks that show the bases in which many definitions are grounded. One of these is Scribner's (1986) well-known metaphorical descrip-

tion of literacy as adaptation, as power, and as a state of grace. The other, which I generated, suggests in brief that many definitions of literacy are grounded in one of four views: (a) levels of competence (e.g., reading at a grade 10 level); (b) purpose/functions such as developmental or functional views; (c) specialized literacies; or (d) emphasis definitions such as psychological/individual emphases versus social/cultural bases.

In using these frameworks to examine how literacy has often been described, students began to grapple with the complexities involved in literacy and its implications and thus readily became involved in critiques of different positions. Given the different specific educational interests among the course participants and the differing literacy goals in various research projects we were reading about, students in class discussion thoughtfully and critically examined such matters as whose interests are served and what is actually accomplished in literacy projects. These questions were pursued through each student's work on a particular specialized literacy.

In the sections below, information literacy and scientific literacy are examined briefly to illustrate the conceptualizations of literacy at work and the kind of questions or tensions that arise. Alix is an academic librarian as well as a doctoral student, and in work leading toward her dissertation she has been wrestling with the concept of information literacy. Penny, also a doctoral student, is intrigued with what scientific literacy entails. Links are then suggested to other specialized literacies.

Information Literacy (Alix)

Today we live in the Information Age. We often hear about the paperless office and the virtual university. We are bombarded with massive amounts of information each day. "To claim a place in the Information Age, some librarians propose a new professional responsibility that would change the nature of work for school and academic librarians" (Strege, 1996, p. 18). Many academic librarians are worried about the future of their profession if all citizens have unlimited access to information from their homes. A Bill Gates world with ubiquitous access to information is somewhat frightening for librarians as they watch their profession become deskilled and undervalued. Librarians are no longer the gatekeepers of information and many fear that they will not be the gateways to information in the future.

Librarians have responded to the concerns about the Information Age by "proposing a new type of literacy that only they can provide" (Strege, 1996, p. 44). This new literacy is information literacy.

Information literacy entails finding, evaluating, using, and subsequently communicating knowledge. The current literature suggests that information literacy involves a complex set of skills that allow learners to express, explore, question, and understand the flow of ideas among individuals and groups in a vastly changing technological environment.

The American Library Association's (1989) definition of information literacy is the one most often used today: "To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (p. 1). It is readily ap-

parent that information literacy is narrowly defined and seems to be concerned only with the skills one needs to survive and thrive in the Information Age.

Information Literacy in the Academic Setting

The document *Transforming Higher Education* (Dolence & Norris, 1995) presents the premise that if higher education institutions do not get in tune with the Information Age, they are doomed to failure if they wish to meet the needs of their clientele. Academic librarians are currently focusing their efforts on information literacy as a means of empowering students with the requisite skills to succeed in the Information Age.

Academic libraries have begun to incorporate information literacy into their planning documents, strategic directions, goals, and mission statements. For example, the libraries of two of Alberta's largest research institutions discuss the importance of the academic library providing information literacy opportunities for their university community.

> Information literacy is a key component of teaching in the academic environment. Through formal training and individual consultation, the library lays the foundation for lifelong learning in all disciplines and helps learners to develop and apply sophisticated models of information collection and evaluation. (University of Calgary, 1997)

> We enable the learner to find needed information in a timely manner. We see information literacy, that is, the ability to be self-sufficient and self-motivated in locating, accessing, using, and evaluating information, as a necessary skill in the information age. (University of Alberta, 1996)

The Promises of Information Literacy

Information literacy is seen as a beacon of hope for students today. It promises them the skills necessary for success, power, and job security. Researchers in the field of information literacy make such claims as: it is a necessary survival skill for the information age (Curran, 1991); information literacy forms the common prerequisite for lifelong learning (Olsen & Coons, 1991); in order for students to be successful, they must acquire (or learn) information skills (Yee, 1991); socioeconomic mobility is determined by the ability to gather information independently and appropriately (Arp & Kenny, 1990).

It appears that the economic claims attributed to information literacy are similar to those attributed to literacy generally. In addition, charges against information illiterates are similar to those against illiterates. Persons who are less information literate will not lead as productive lives, and they will experience few rewards and little financial success. A functional view is inherent in the definitions of information literacy as well as in its benefits and outcomes (Strege, 1996).

Academic librarians have championed information literacy to the forefront of their academic institutions through advocating the economic outcomes and benefits of information literacy for learners. Information literacy seems to be the answer to the woes of university administrations whose graduating students are unable to secure a place for themselves in the Information Society. The focus of information literacy is very much on the individual's achievements and successes rather than on the possible benefits for society.

Current Academic Information Literacy Practice

A functional view is inherent in the definitions of information literacy as well as in its benefits and outcomes (Strege, 1996). A review of the literature, as well as a review of current practice evidenced through discussions on "information literacy listservs," reveals that most librarians have adopted the term *information literacy*, but that their practice still reflects standard bibliographic, or library, instruction.

Most of the published literature describes information literacy instruction programs that are skill-based and focus on functional approaches. It appears that librarians have simply substituted the traditional term *library instruction* with the politically charged term *information literacy*. Librarians are also endeavoring to develop checklists of skills for determining if students are information literate. Most information literacy classes and programs appear to focus on only one aspect of information literacy—skills for accessing information.

What Next?

Information literacy appears to have a twofold objective: one is to empower learners and the other is to help librarians maintain control over information access. These two objectives are in tension with one another; the more learners are empowered, the fewer librarians are needed. The literature does not address these concerns. Perhaps the narrowness of the accepted definition of information literacy limits the possibilities that librarians can offer their students.

Academic librarians have not investigated information literacy from a conceptual or theoretical perspective. They have not questioned the values or assumptions implicit in the narrow definition of information literacy. Rather, they have focused their efforts on developing and describing information literacy programs that are drenched in skills-based approaches.

I came to the course questioning information literacy. The course unfolded some of the underlying assumptions that I feel must be critically examined by librarians. These assumptions include:

- Information literacy is not content-specific: it appears throughout the literature that academic librarians can provide generic information literacy courses which will provide students with the necessary skills to succeed in the Information Age.
- Information literacy can be measured and evaluated objectively. Many propose that a checklist of appropriate skills and capabilities may be presented to individuals to determine their level of competence.
- Librarians are solely responsible for providing information literacy instruction. One of the key components of information literacy is the ability to evaluate content. It is currently the underlying expectation that in information literacy programs, librarians teach students how to evaluate content critically rather than calling on content experts (such as faculty).

It is tempting to outline what information literacy should ideally entail in light of the underlying assumptions mentioned above. However, given the lack of theoretical research in this area it is premature do so. My doctoral research involves deconstructing the term *information literacy* and developing a theoretical model for what constitutes information literacy couched with the domains

of literacy, information, and knowledge. These domains have been selected as foundations for the model because they encapsulate how an individual comes to construct and organize knowledge.

Information literacy is currently viewed as a wonderful ideal, and one that should be encompassed by academic librarians and their institutions wholeheartedly. Academic librarians, however, need to view the bandwagon of information literacy with skepticism. They and others need to be in a position to see through the implications of information literacy policy statements (such as those presented above) and information literacy definitions in a systematic way. Information literacy cannot be studied by reviewing current practices of successful or unsuccessful programs; rather, it needs to be studied from a theoretical perspective. Librarians need to step back from their instructional routines and critically question what information literacy is and how they may be leaders in the field of information literacy. I hope that my doctoral research will take academic librarians one step closer to determining what information literacy should ideally entail.

Scientific Literacy (Penny)

Over the past several years I noticed the phrase *scientific literacy* used as a composite aim in various school programs of study. More recently the phrase has figured prominently in documents concerning national science curriculum standards in the United States and Canada. I refer here to Project 2061 (American Association for the Advancement of Science [AAAS], 1989), the follow-up *Benchmarks* document (AAAS, 1993), and the more recent *National Science Education Standards* document (National Research Council [NRC], 1996), and in Canada to the recently published Pan-Canadian protocol for school science (Council of Ministers of Education Canada [CMEC], 1997), which among other things seeks to define scientific literacy for the nation. Begun in February 1995 by the CMEC, the Pan-Canadian Project has produced a protocol for use by curriculum designers across the country for crafting curriculum documents at the provincial and local level. The final document was released in October 1997.

In these documents the term *scientific literacy* was not clearly defined, but served as an overarching aim to be addressed through meeting lists of more specific goals drawn from the latest thinking in the field of science education. Science educators in general use the term *scientific literacy* to denote everything students should come to know and understand about science as a result of their years of schooling. Roberts (1983) writes that scientific literacy has a composite meaning and serves as a slogan or rallying cry for curriculum reform.

As a slogan, the term resists definition. Yet scientific literacy is a metaphor. The inclusion of the word *literacy* in the term renders it particularly powerful as a rallying cry. We all wish our children to be literate. I came to the course looking for some deeper meaning for the term *scientific literacy*—one that would offer theoretical justification for linking the words *scientific* and *literacy.*

Scribner's (1986) landmark article served as a useful heuristic tool for initial exploration of the literacy research. She writes that literacy is socially defined. The enterprise of defining literacy is one of assessing what counts as literacy in a given social context. Scribner outlines three metaphors for literacy as it is

often discussed in the field: literacy as adaptation, literacy as power, and literacy as a state of grace. As in the area of literacy, conceptions of scientific literacy abound in science education (Driver, Finch, Millar, & Scott, 1996; Roberts, 1982, 1983; Roberts & Ostman, in press; Yager, 1989). I found Scribner's (1986) metaphors applicable to categorizing descriptions of scientific literacy in the science education literature as well. I drafted a theoretical typology to link Scribner's metaphors with constructs of scientific literacy available in the science education research literature (Bailey, 1998).

In his background article for the Science Council of Canada study (Science Council of Canada, 1984), Roberts (1982, 1983) identifies seven curricular emphases that have been apparent in science education practice in North America in the 20th century. A curriculum emphasis is "a coherent set of messages to the student *about* science (rather than *in* science) ... which provide the answer to the student question 'why am I learning this?'" (Roberts, 1982, p. 245). A curriculum emphasis is a meta-message concerning what science instruction is for and about, which accompanies the teaching of science content. Such meta-messages can be communicated to students explicitly or implicitly. Roberts (1982, 1983) states that he developed his category system of curriculum emphases inductively through examining North American curriculum policy statements and school science textbooks from the previous 80 years. Like Scribner (1986) in reference to her literacy metaphors, Roberts writes that the emphases describe what has been tried in science education curriculum documents, but are not exhaustive as to what is possible in science education. Roberts' emphases include everyday coping; the structure of science; science, technology, and decisions; scientific skill development; correct explanations; self as explainer; and solid foundation. Also like Scribner (1986), Roberts argues that no one curriculum emphasis should be favored in curriculum policy-making over any other. All are defensible. Science programs should expose students to as many emphases as possible in the course of their school years.

Yager (1989) contributes a concise statement of possible justifications for school science. These were the bases for his Project Synthesis. This project sought to point to new directions in school science through analysis of the results of a national school science assessment and of three national surveys pertaining to science education in the US. Yager's four justifications for school science include science for resolving current societal issues (science education should develop citizens prepared to address science-related issues in society); science for preparing for further study (science education should help students who are likely to pursue further science studies or professions in science to meet their academic needs); science for assisting with career choices (science education should make students aware of the variety of science- and technology-related careers available to persons of varying interests and abilities); and science for meeting personal needs (science education should prepare students to use science for coping in a technological world). The Project Synthesis report concluded that the only apparent justification for school science programs of the time was preparation for further study.

Table 1 schematically relates Roberts' (1982, 1983) science curriculum emphases and Yager's (1989) justifications for school science to Scribner's (1986) metaphors for literacy. It is difficult to draw one-to-one relationships between

constructs from different theoretical frameworks, and this is not my intention. I do, however, argue a basis for drawing relationships between the different literacy conceptions in the table. Scribner's (1986) literacy as adaptation is concerned with literacy education to assist students in coping with the demands of their daily life and is linked to human resource development and economic growth. Therefore, I would associate the literacy as adaptation metaphor with Yager's (1989) science for meeting personal needs and science for assisting with career choices justifications for school science. Roberts' (1982, 1983) everyday coping is obviously related to the daily-literacy-demands element of the literacy as adaptation metaphor. With respect to the human resource development/economic growth element of this metaphor, one must also consider which science curriculum emphases would develop the scientific literacy (or literacies) necessary for students to obtain jobs in the science and technology sector. I would argue that a solid foundation of science content knowledge, along with some scientific skill development, typically developed through a predominantly correct explanations approach in conceptually crowded upper-level high school science courses would fit the bill. These could collectively be considered a solid foundation emphasis with respect to obtaining employment in science-related careers. Authors including Yager (1989) and May (1992) argue that this is currently the dominant approach to science education in North America. The literacy as power focus on emancipation and social reconstruction links this metaphor somewhat with Yager's science for resolving societal issues and in turn with Roberts' science, technology and decisions emphasis. The latter two perspectives on scientific literacy seem markedly less radical in their perspective than, for example, Freire and Macedo's (1987) work in literacy for critical consciousness. Yager and Roberts contemplate critical assessment of social issues apparent in one's world as a voting citizen. Freire and Macedo (1987) suggest working to change one's social world fundamentally. Overthrowing those in power (as opposed to voting for or against them) may be part of this scenario.

Like the previous metaphor, Scribner's (1986) methaphor of literacy as a state of grace serves to suggest an expansion on the possibilities for scientific literacy suggested by Yager's (1989) typology, in particular. This emphasis of

Table 1
A Comparison of Conceptions of Literacy and Scientific Literacy

Scribner's (1986) Literacy Metaphors	*Yager's (1989) Justifications for School Science*	*Roberts' (1982, 1983) Curriculum Emphases*
Literacy as Adaptation	Science for Meeting Personal Needs, Science for Assisting with Career Choices	Everyday Coping, Solid Foundation, Scientific Skill Development, Correct Explanation
Literacy as Power	Science for Resolving Current Societal Issues	Science, Technology, and Decisions
Literacy as a State of Grace	Science for Meeting Personal Needs, Science for Preparing for Further Study	Self as Explainer, Structure of Science

this metaphor on self-actualization through coming to know makes Yager's justifications for science education seem somewhat mundane. His science for meeting personal needs and science for preparing for further study go only part way in expressing the purpose for literacy education captured in this metaphor. Indeed, this metaphor suggests an additional justification for science education that might be called "science for coming to know one's world." This metaphor is addressed through the self-as-explainer focus on coming to know science as one way of explaining one's world and through the structure-of-science focus on learning about science as an intellectual enterprise.

I used this typology as a theoretical framework for an analysis of the final draft of the Pan-Canadian protocol document. What conception of scientific literacy does this document imply as a basis for curriculum reform of school science in Canada? Because the final draft of the Pan-Canadian protocol has only recently been released, my analysis of it is preliminary. A number of features of the document lead me to conclude that its implied conception of scientific literacy is instrumental, designed to produce the (relatively uncritical but skilled) workers in the science and technology sector of tomorrow. Statements in the introductory section of the document link science education and scientific literacy in Canada to the nation's relative place in the global economy. The document is organized around four sets of goals dealing with science-technology-society-environment (stse) relationships, knowledge (or content), skills, and attitudes. Attitude goals emphasize values such as accuracy in one's work and safety in the lab—attributes of a desirable future worker. Stse goals are considered parallel to the other sets of goals. Goals in the stse category emphasize the everyday application of science and technology and careers in this sector of the economy. Critical perspectives on the role of science and technology in society are deemphasized. Knowledge goals are divided into traditional subdisciplines in science—life science, physical science, and earth and space science. This feature and the sheer number of knowledge and skills goals indicate a curricular focus on preparation for further science study, culminating perhaps in the student's taking on a career as a science specialist. Roberts (1982, 1983) calls this a *solid foundation* curriculum emphasis (or conception of scientific literacy). Scribner (1986) terms such a conception *adaptation* (to everyday life and the world of work).

My experience in the literacy course permitted me to step outside the discourse of science education to consider the possible meanings of scientific literacy from a broader perspective offered by literacy research. Through constructing a theoretical typology relating an important article categorizing understandings of literacy as a whole with notions of scientific literacy, I was able to see the narrowness of the notion of scientific literacy implicit in a new national curriculum protocol for school science. While drawing on the power of literacy as a phrase and metaphor, the Pan-Canadian protocol for school science has put forward a notion of science education with only a fraction of the possibility suggested by the phrase *scientific literacy.* This notion of scientific literacy is centered on science education for the development of skilled workers in the science and technology sector of Canada's economy. The theoretical typology I developed points to conceptions of scientific literacy that have been deemphasized in the development of the Pan-Canadian protocol, conceptions

that would address Scribner's metaphors of literacy as power and literacy as a state of grace. I hope that the discussion of science curriculum reform, begun in recent regional meetings to review drafts of the Pan-Canadian protocol, continues in the science education community. This dialogue should expand to include various and alternative possible conceptions of scientific literacy and to imagine their curricular expressions.

Other Specialized Literacies

The two examples we have used of specialized literacies have in common the idea that they are literacy *about* something: literacy about science, literacy about information. Other usages may have more to do with the development of reading and writing abilities in particular situations, for example, family literacy involves introducing children to reading and writing in the home; prison literacy is concerned with the kind of education programs available in prisons.

Those two examples make a further interesting contrast in that family literacy occurs in an atmosphere of hope and promise; we hope the young child is being started on a journey of success with literacy and enjoyment of what it can contribute to life. By contrast, prisoners are persons who have lost out in society in one way or another, and prison literacy is fraught with a tension about whether its purpose is mostly to keep prisoners occupied, however mindlessly, or whether it should be an act of potential liberation by giving prisoners knowledge and ability with which to help rebuild their lives on release. In the contrast between family and prison literacies, the warm fuzzy and the cold prickly sides of literacy education are too often apparent.

Family literacy is really about empowering children to take their places in society in terms of both their individual achievements and their potential contributions to a democratic society—it is working toward literacy as a state of grace (Scribner, 1986). By contrast, a study by Selme (1997) showed that although some teachers in prison settings genuinely want to empower their students in the sense of allowing them to use reading and writing abilities to improve and enrich their own lives, there is also in the system an unexpressed but real fear of prisoners becoming empowered in any way at all. (For a further consideration of the issues involved in prison literacy, see Selme, 1997.)

Although these differences in usage of the term *literacy* are of consequence, the core issues we are addressing remain across usages. In each case skills are needed, but that is only a small beginning; in each case there is the question of how political influence or control is exerted on the situation; in each case persons are heavily influenced by the social and cultural context in which they live; a key factor is always the critical judgment individuals are willing and able to exercise; and most especially, individuals choose the specific action or inaction they find appropriate to address concerns.

An Evolving Framework

Literacy is a complex concept that can be examined through many lenses (educational, aesthetic, sociological, political, philosophical, cultural, economic, critical, etc.). But there is necessarily an educational component; as educators all the students in the course began with a sense that at the core of literacy is a required component of skill in reading and writing. The elementary schoolteachers in the group were particularly aware of this, because an important part

of their daily work is helping children to become readers and writers. Indeed, one view of literacy is to see it as competence in the 3 Rs, that is, as a set of basic educational skills.

Thus it was interesting that as we examined several specialized literacies, we were struck by the prevalence of skills/technique-based notions of literacy implicit across these specialized literacies. In learning to use computers, keyboarding skills become an issue. Similarly, science teachers are concerned that students learn basic concepts such as the equation for work and manipulative skills such as adjusting microscopes and measuring and mixing liquids or powders with accuracy and without accidents. Library research involves a set of cognitive skills such as knowing how to use search tools to find information. That is, complex cognitive and psychomotor skills are involved in even the most basic aspects of reading and writing, and the number, variety, and complexity of skills increase rapidly when richer conceptualizations of literacy are held. Figure 1 presents this view with skills and techniques at the center leading into any particular form of literacy under consideration. Our discussions of literacy frameworks made clear that these skills-based approaches represent only a narrow subset of the possible meanings promised by the inclusion of *literacy* in their titles; they are concerned only with levels of competence as shown by ability to function in fragmented practical tasks.

The opportunity to compare views of literacy with educators in different disciplines during the course was useful. The traditional fragmentation of the literacy field into areas such as family literacy and workplace literacy has perhaps served to reinforce the lack of communication among those involved in the study and practice of particular areas of literacy. Therefore, trends such as an emphasis on skills in specialized literacies would not be apparent. This realization leads us to suggest further research in literacy along several lines. Trends and disparities across specialized literacy fields need further study. Our experience in the critical literacy course caused us to question relationships between pairs of literacies; for example, what is the relationship between family literacy and scientific literacy?

Students in the class rapidly began to wonder about how literacy affects individuals and societies and to question some personally held assumptions.

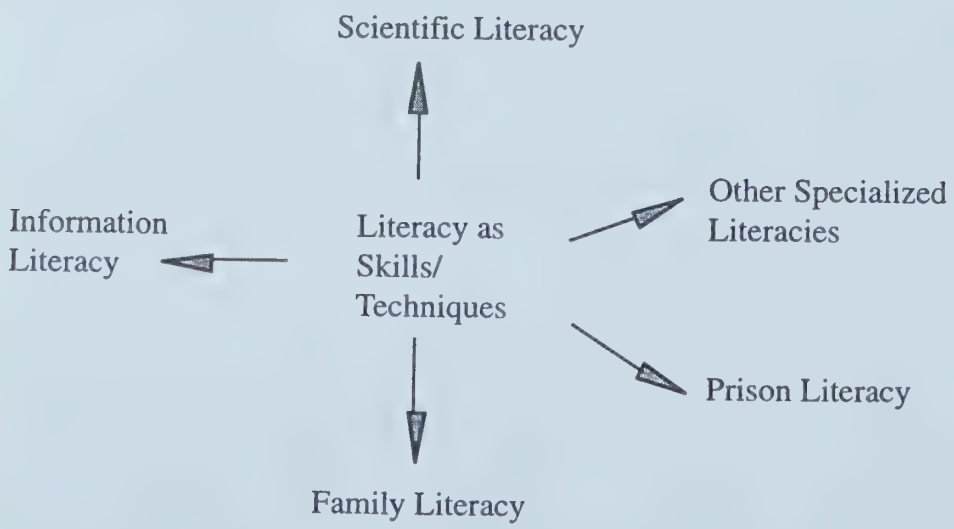

Figure 1. Skills and techniques are basic to all literacies.

This theme of critique and query pervaded the course. As the three of us reflected further, we represented (at this point in our thinking) the larger concerns as shown in Figure 2, with the three layers of the model indicating layers of contextualization.

The star center represents the interrelationships among specialized literacies; any specialized literacy is related to any other. These specialized literacies are embedded in the larger field of literacy itself, which is in turn embedded in the larger society. The layers of the model are related reflexively to each other. Each literacy term, by its very existence, necessarily influences how the other terms are viewed. For example, society determines in part how literacy is understood and valued, and society also is determined in part by the extent and quality of the literacy practiced in it.

We began our discussions of literacy by considering two frameworks that structure the notions of literacy currently at play in North American society. We feel the need to continue our questioning of literacy by imagining what other conceptions of literacy are not included in these frameworks, what conceptions have not achieved popular acceptance, and why this is so. In raising these sorts of questions, we have begun to address the obverse side of the society-literacy connection. We are now considering how we as literacy educators can move beyond critique of specialized literacy fields in the traditional conceptions of literacy to act to transform the way society conceives literacy.

Therefore

Injustice is caused when a narrow view of literacy is perpetuated by a powerful group in a specialized area or in the broad field of literacy itself. Those who hold the power can write the definitions and requirements so as to exclude any

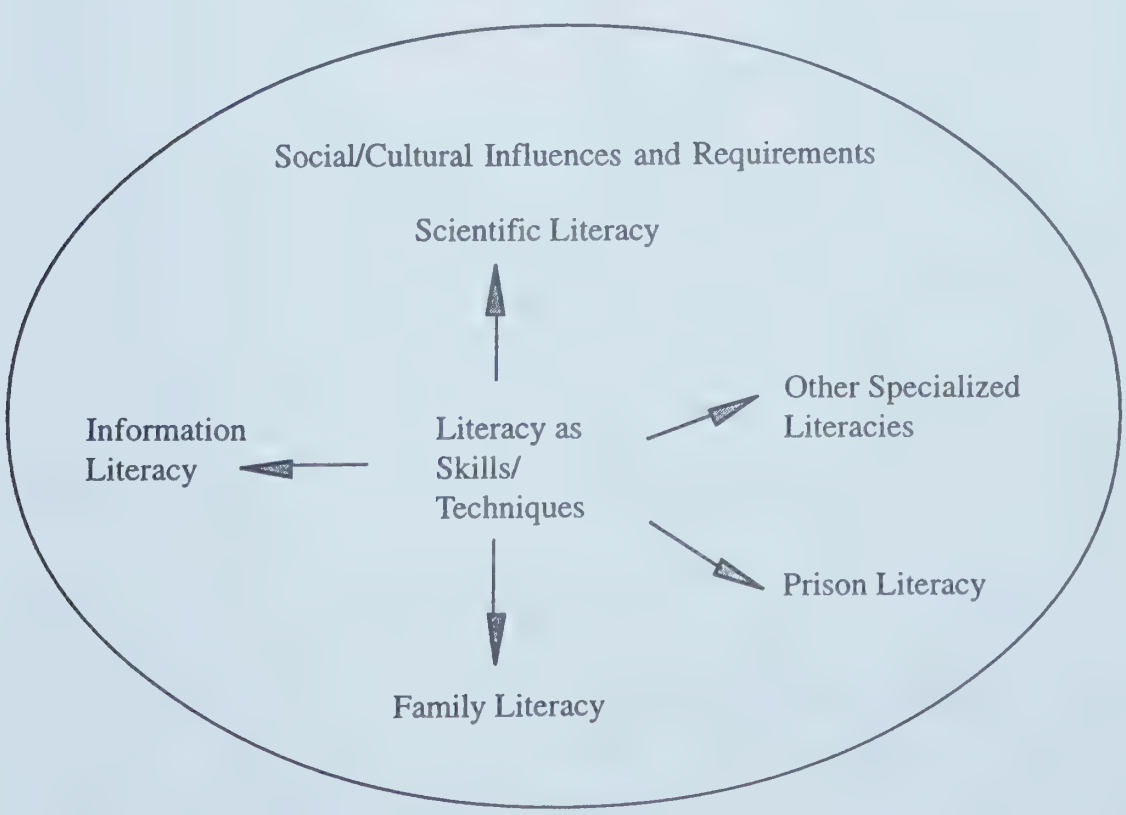

Figure 2. A reexamination of the influences on literacy education.

person or group deemed undesirable and to consolidate their own positions and power. Literacy is particularly vulnerable to this injustice because it is so easy to set membership requirements based on literacy and linguistic achievements. (As Henry Higgins said, "The moment an Englishman talks he makes some other Englishman despise him"—a clear indication of exclusionary boundaries at work (Shaw, *Pygmalion*). Why do most prisoners in Canada score well below national averages on literacy tests—or why are those with lower literacy scores more likely to end up in prison?) Questioning the political forces and motives behind educational choices must be a deliberate act of educators. For example, whose interests are served when scientific literacy corresponds to the development of skilled but uncritical science and technology workers of tomorrow? Probably not the workers. It matters who gets to be the gatekeeper, who has coercive influence, and who has greater skills with which to devour those with lesser skills. (For a dramatic example of this last point see *Toxic Literacies*, Taylor, 1996.) Greater skills unaccompanied by a social conscience simply make for more skillful abuse of others.

Literacy definitions and the purposes for literacy education implicit in them are socially constructed. Mechanisms in society also dictate who has access to literacy education and in what degree. Our consideration of how literacy is taught and learned or not learned by particular individuals or groups led quickly to consideration of the political factors involved. Teachers readily saw how their work is politically influenced or even determined; we also considered how teaching is necessarily a political act and therefore how teachers are not only acted on, but are actors, politically speaking. This led gradually to questions of how a political system is shaped by the society in which it operates, which led to the role of culture in influencing what a particular society values, which led to the major question of what constitutes moral/ethical action. In other words, we have worked through an examination of what *is*, toward questions of what *might* and *ought* to be.

Unpacking the concept of literacy highlights for us our social and professional responsibilities as educators—what is the basis for responsible action, and what are the ethical obligations of professional teachers and educators? Is it good enough to recognize and perhaps lament that many Canadians have marginal literacy skills, that many in the developing world are oppressed in part because of their inability to read the documents they are required to sign or to write on their own behalf, that many are unable to access and evaluate appropriate information to make informed decisions about such matters as health care? Or does knowledge of these injustices and adversities require educators, themselves beneficiaries of literacy, to take socially responsive action?

Teachers have frequently considered it their task to speak in a voice that is heard only inside the classroom. But is that sufficient? Those of us who have made a career in education, especially in literacy-related work, ought not to be keeping our heads down quietly within the walls of educational institutions, but rather to be adding our voices to the current debates about literacy—in which society well beyond educational circles is now so interested and at times so misinformed. We can, if we have the will to do so, make a start by offering alternate considerations of literacy, pointing out whose interests are repre-

sented and who is rendered voiceless, and teaching with more deliberate awareness of the ramifications of our work.

Such activities are political and may not be popular. But they are a service that educators, who have benefited personally from publicly supported education, can contribute to others and to society. What is presented here is only a beginning, a raising of some questions and concerns. The needed work for greater justice can take many forms, according to the abilities and opportunities of the individual educator. Each of us, every educator who considers literacy a matter of consequence, will have to decide by what voice, way, or means we can contribute.

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Community Service Providers as Literacy Facilitators: A Pilot Project

A pilot project was conducted with 20 community service providers that included health, social, and other professional workers from an inner-city area in one of Canada's capital cities. The goals of the project were (a) to explore a range of community service providers' perspectives on literacy; (b) to determine if six hours of training in family literacy development strategies modified community service providers' understanding of literacy learning; and (c) to examine how community service providers, as a result of the training, incorporated literacy events for the families they serve in their professional practice. Participants were involved in two three-hour workshops directed to literacy acquisition in general and family literacy practices in particular. Data were collected through pre- and post-survey questionnaires, individual interviews, and information collected during the workshops. Results indicate that participants demonstrated a shift in attitudes from skills achievement to sociocultural perspectives on literacy acquisition. The community service providers also attended to and included literacy events more frequently in their own professional practices after workshop participation.

On a dirigé un projet pilote avec 20 agent(e)s de services communautaires tel(le)s que des professionnel(le)s dans les domaines de la santé, des services sociaux, et autres d'un quartier défavorisée d'une des villes capitales canadiennes. Les objectifs du projet consistaient: (a) à éxplorer la gamme des perspectives de l'alphabétisation des agent(e)s de services communautaires; (b) à déterminer si six heures d'entraînement en stratégies de développement familiale de l'alphabétisation modifiaient les habiletés des agent(e)s de services communautaires à mieux comprendre le processus de l'alphabétisation; et (c) à examiner comment les agent(e)s de service communautaire, suite à leur entraînement incorporaient dans leurs pratiques professionnelles des activités propices à favoriser l'alphabétisation dans les familles desservies. Ceux et celles qui participaient dans les deux séminaires de trois heures chacun visaient l'acquisition de concepts généraux de l'alphabétisation et de la mise en pratique de l'alphabétisation en situation familiale en particulier. La collecte des données s'est faite à partir des réponses obtenues aux questionnaires distribués avant et après les séminaires, des entrevues individuelles, et aussi de l'information collectionnée pendant les séminaires-mêmes. Les

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résultats indiquent que chez les participant(e)s il s'effectuait un changement d'attitude par rapport à l'alphabétisation, c'est-à-dire, d'une perspective valorisant d'abord l'acquisition d'habiletés vers une perspective de l'alphabétisation valorisant de plus en plus ses dimensions socioculturelles. Aussi, suite à leur participation dans les séminaires, les agent(e)s de services communautaires portaient plus leur attention aux événements pertinents à l'alphabétisation et incorporaient davantage des activités favorables à l'alphabetisation dans leur pratiques professionelles.

Introduction

This article describes a pilot project conducted with 20 community service providers that included health, social, and other professional workers from an inner-city area in one of Canada's capital cities. The goals of the project were (a) to explore a range of community service providers' perspectives on literacy; (b) to determine if six hours of training in family literacy development strategies modified community service providers' understanding of literacy acquisition; and (c) to examine how community service providers, as a result of the training, incorporated literacy events for the families they serve in their professional practice.

The African adage that it takes a whole village to educate a child is particularly meaningful in light of current literature that views literacy development as a community responsibility rather than solely the responsibility of the school (Heath, 1982; Purcell-Gates, Allier, & Smith, 1995; Taylor, 1983). Many researchers maintain that children grow into a culture of literacy and develop attitudes about and abilities for literacy long before they come to school. The role the family plays in bringing children to an awareness and eventual practice of literacy is critical to their literacy development. Some families, however, because of a variety of social, economic, educational, or cultural reasons are unaware of how early literacy development occurs and may not provide their preschool children with literacy episodes that foster literacy development.

The family as an institution does not stand alone in the community. It is closely intertwined with other organizations; for example, health and social agencies provide support services to families when they offer well-baby clinics, recreational mother and toddler programs, second-language classes for immigrants, and financial planning sessions, to mention only a few. In many instances, community health, social, and other service providers have access to family environments for years before children's school entry. Professional community workers who are aware of how literacy is learned and who can suggest appropriate home language and literacy strategies are in an ideal position to influence positively family literacy behaviors. As community service providers interact in particular with young parents who are educationally disadvantaged, socially isolated, and/or who have low literacy levels, they may provide ongoing language and literacy development check-ups in conjunction with their routine social, health, or other professional practices. Furthermore, by including the voices of community service providers in supporting literacy development in the home, the importance of literacy learning as a family event and the significance of including even very young children in these events are underscored. A report by the National Anti-Poverty Organization (NAPO, 1992) titled *Literacy and poverty: A view from the inside* suggests that greater collaboration between literacy programs and other service organizations in the

community results in a more cohesive approach to literacy learning. Such an approach crosses generational boundaries and highlights for parents the centrality of their role as positive and supportive models for their children's literacy learning.

One may suggest that although professional community workers are highly trained in their fields of practice, they may not have a clear understanding of current perspectives on how literacy is acquired. It is possible that such workers may hold views about literacy that reflect those presented in the popular press, which maintain that literacy is simply the achievement of a selection of reading and writing skills that can be used in any context, that literacy is decontextualized from cultural practices, that less literate parents do not have the ability to support literacy practices in the home, and that literacy learning only begins and results from formal school instruction.

Although the research presented in this article sought to enhance the role of community service providers as agents for literacy development, the nature of their understanding of literacy learning and how literacy might be incorporated into their professional practice were the prime focuses for investigation. In short, this study was an attempt to sensitize community service providers to literacy issues as they relate in particular to their less literate clients' lives. It should be noted that this research project was exploratory in nature as little in the literature addresses the topic of community workers as literacy agents for the families they serve.

Related Literature

The notion that language and literacy are social processes that cannot be separated from the social development of young children is currently accepted in the literature (Ferreiro & Teberosky, 1982; Heath 1982; Hiebert, 1986). Inherent in this view is the belief that the family is an educative community in which shared learning experiences occur. There has been increasing interest among educators in the connection between families and literacy (Gadsen, 1995) as a result of evidence indicating that early childhood and school programs may be more successful when family members are involved. As noted by several researchers (Delgado-Gaitan, 1987; Handel & Goldsmith, 1994; Nickse, 1990), an important issue in family literacy programs is that they tend to teach parents and children literacy strategies that are characteristic of mainstream families, such as book reading and appropriate verbal reactions with children. However, as indicated by Auerbach (1989), special sensitivity is needed to take into consideration the cultural roots of the populations served by family literacy programs. Auerbach contends that language minority families and those with less proficient literacy skills value literacy and that many family practices that do not include overt print events can act as support for and avenues to literacy development. Fagan (1996) concurs when he notes that family routines such as mealtime discussions about daily events or parental consistency related to bedtime behaviors provide children with appropriate learning that will help them in school. In short, several investigators (Snow, Barnes, Chandler, Goodman, & Hemphill, 1991; Strickland & Morrow, 1989) discard the deficiency model for literacy acquisition for families that are socially and educationally disadvantaged.

A search of the literature did not find many studies that investigated broader interpretations for community-literacy collaborations. Most of the citations provide descriptions of programs designed to increase either adult literacy abilities or ways to involve families in mainstream literacy events so that the children may be better prepared to learn in school (St. Pierre, Swartz, Deck, & Nickel, 1993). For example, the few studies that addressed literacy *and* health focused primarily on the development of health print materials for less literate adults (Doak, Doak, & Root, 1996). Even today considerable attention and money are paid to the preparation of such materials. The premise appears to be that if the print is written in a simple format, people with literacy difficulties will be more able to understand the messages it contains. Although no doubt such a premise is valid, it is possible that such practices maintain and support perspectives of deficiency with respect to less literate people.

Proponents of the sociocultural perspective, on the other hand, contend that literacy is not a have-have not phenomenon. They maintain that literacy proficiency evolves as people attempt to use print in the context of their lives, at home, at work, and in the community. Researchers such as Street (1992) suggest that those who hold an "autonomous" view of literacy support a technical skills perspective, in which these technical skills can be applied across contexts and cultures without attention to specific situational demands. Street prefers an alternative view, which he terms an "ideological" model for literacy. This model recognizes literacy as practices that respect the political, social and cultural environments in which those practices occur. His perspective is supported by Fingeret and Drennon (1997), Stein (1995), and Taylor (1983). Although the efforts to develop plain language texts may encourage meaningful print interactions in the family context, such texts alone will not be sufficient to support parent-child literacy relationships that evolve as family members use literacy to meet their own social and cultural needs.

The research is rich with documentation on how children acquire literacy. However, if community workers' perspectives on literacy acquisition are similar to those presented in the popular press, one may suggest that they will be more inclined to ignore the issue of child literacy development, considering it primarily the responsibility and concern of the school. For example, if community workers know why reading to children provides a solid base for formal literacy instruction, one may assume that they will be more likely to encourage such reading in the less literate families they serve.

Method

The Sample

A community health agency in a major Canadian city was approached to determine its interest in having some of its workers participate in a series of workshops directed toward literacy. The response from agency personnel was positive, although there was some initial reluctance to be involved in a research endeavor. This reluctance related to questions about the fruitfulness of investigating those who are literate in a study that explored ways of assisting their less literate clients. In addition, this agency could not release more than two staff members for the designated time (six hours), so the administrator suggested that other health and community agencies be approached to determine

interest in participation in the study. After a series of eight meetings with several community agency administrators, 14 agencies elected to send one or two of their staff to participate in the workshops. The names of the individual participants were forwarded to one of the researchers, who subsequently contacted them all by telephone to talk about their professional practices and to determine what might be included in the workshops to meet their needs adequately.

Twenty community workers participated in the study: five public health nurses, four social workers, five outreach workers (individuals who provide assistance in the homes of at-risk families), one dental assistant, two health agency administrators, one community counselor, and two community second-language facilitators. After having been advised of the purpose and nature of the study and having been assured that confidentiality, anonymity, and other ethical aspects were being adhered to, all individuals agreed to participate. All participants were women. Both researchers co-facilitated the workshops.

Pre- and Post-Survey

Participants completed a Propositions About Literacy Survey (PALS) before the workshops began and again at their conclusion. Broadly based on the work of Deford (1979), the survey asked respondents to rate on a four-item Likert scale their agreement or disagreement with 30 statements about literacy. The PALS statements were composed from a range of literacy topics addressed over a one-year period in local newspapers and magazines. Seven statements focused on the role of parents in their children's literacy learning, 10 addressed emergent literacy, six attended to the processes of literacy learning, and seven centered on the sociocultural nature of literacy learning. In the data analysis procedures, *strongly agree* and *agree* sections were collapsed into one item; a similar format was used for *strongly disagree* and *disagree* selections. Percentage totals were then identified for each item for both pre- and postsurvey results. Pre-/postsurveys were completed by 18 of the 20 participants.

The Workshops

The workshops were an integral part of the research process and allowed for immediate use of the information generated in them for those who participated. In other words, the workshops were used as a participatory research technique.

The goals of the workshops were: (a) to provide participants with strategies to help them recognize and support the development of early literacy behaviors in the families they serve; (b) to identify contexts where community service providers may positively influence the literacy learning behaviors of their adult and child clients; and (c) to determine if literacy awareness workshops extend community service providers' understanding of literacy learning and use.

The workshops were designed to provide community workers with those perspectives on literacy currently held in the literature noted above. If community professionals were sensitized to recognize the positive (literacy) events presently occurring in families, as opposed to viewing these families as literacy deficient, the workers might indicate to parents the appropriateness of these

events for children, as well as suggest other more intentional literacy practices in families. Furthermore, the underlying premise of the workshops addressed the necessity of literacy acquisition as both socially and culturally meaningful to families rather than being simply the attainment of school literacy practices.

Although three two-hour workshops were originally planned to occur on three separate days across the months of September, October, and December, the collaborating agencies suggested that two three-hour workshops would be more appropriate because of the difficulty of releasing staff. One of the agencies elected to host both workshops.

The first three-hour workshop addressed the topic of literacy in general terms. Topics included Canadian literacy statistics, literacy use in daily life, the identification of the literacy needs of clients, strategies to incorporate literacy into professional practice, and strategies to support the literacy needs of less literate clients. In addition, workshop attenders participated in a shared-book reading session modeled on the BOOKS (Hayden & Wahl, 1996) program. This program uses children's literature as a launch pad for discussion of issues that surface from the text in light of the reader's personal experiences. The program also uses the print in the text as a medium for enhancing adults' reading ability. At the conclusion of the first workshop, six children's books were given to each participant with the request that each identify on a written form how she used the books in her own professional practice. Participants were also asked to identify how they supported the literacy efforts of their clients during the three-week period between the first and second workshops.

The second workshop addressed concepts surrounding emergent literacy. Topics included concepts about print, learning to read, family literacy practices, and fostering community awareness for literacy. Feedback about how respondents had used literacy in their practice over the three-week period was sought and incorporated into the discussions surrounding family literacy. This workshop concluded with the distribution of five more children's books to participants. A package of professional materials that addressed adult and child literacy was distributed for future reference.

Although the researchers originally intended to donate a selection of books to families and explore how these books were being used in the families, for legal reasons the researchers could not be given the names of families with whom the participants worked. Therefore, the books were given instead to the workshop participants to use in their practice. Each participant received 11 children's books.

Interviews

Three months after the last workshop, one of the researchers contacted as many participants as possible for a telephone interview. It had been intended to have more personal contact, but the workload of the participating professionals, and the difficulty of finding mutually agreeable times to meet, made face-to-face interviews impossible. Sixteen of the workshop participants were interviewed. Two had moved away and two could not be contacted in spite of several attempts to do so. Each interview lasted approximately 30 minutes. Three questions directed the dialogue: (a) What literacy practices are you now including in your professional work that you were not doing prior to the workshops?

(b) What do you see as outcomes from these practices? and (c) What difficulties are you experiencing incorporating literacy into your professional practice? If a participant responded negatively to the first question, the second question was not asked, but this happened only once.

Results and Discussion

Survey Results

Results indicate a shift in workshop participants' understanding of literacy. As noted in Table 1, participants' attitudes about literacy acquisition and development moved from a more traditional understanding of literacy to one that includes more holistic sociocultural perspectives.

For those survey items that addressed the role of parents in literacy learning (2, 4, 8, 13, 21, 25, and 28), participants indicated that they revised their original views of less literate parents as deficient and therefore inappropriate literacy models for their children. The change in perspective for item 21 (parents need to be good readers themselves so that they can model reading for their children) is particularly interesting. Over 50% of participants originally agreed with this statement. On conclusion of the workshops, only 11% held to this perspective. These results suggest that if community service providers maintain this new perspective as they interact with their less literate clients, the professionals will be more likely to suggest that less literate parents talk about the pictures in a book with their children and select simple books that they can read rather than ignoring the issue of literacy.

Participants also demonstrated a new understanding of emergent literacy (items 1, 10, 16, 17, 18, 19, 22, 24, 26, and 27) although it should be noted that the strength of change was not as dramatic as in other sections of the survey. It appears that appropriate understandings of how young children learn to read were held by several participants prior to workshop input. However, greater acceptance generally for current perspectives on learning to read evolved. It should be noted that most of the participants were themselves parents. One may suggest that their initial responses to those items on the survey represented their practice and understanding as parents rather than as community professionals. Such a suggestion seems reasonable given their initial responses to the role of parents in literacy development, as noted above. In other words, what they viewed as appropriate emergent behaviors was a reflection of their own practice with their own children, practice that they may not have seen as possible literacy behaviors for less literate families. On the other hand, if the respondents' perspectives on emergent literacy are maintained as they interact with less literate families, and if they attempt to act on their new understandings for the role of less literate parents in their children's literacy development, the community workers may well have a positive influence on the literacy development of the families they serve.

The six items that focused on the processes for literacy learning (3, 6, 7, 9, 11, and 12) demonstrated that respondents' understanding of literacy acquisition moved from a traditional approach to one that is more culturally aware and less focused on the discrete aspects of print. The level of movement in most cases was quite strong, with a range of 16% to 50% in change for perspective. For example, on the pretest only half of the participants considered reading to

Table 1
Propositions About Literacy Survey: Percentage Totals

Items	Pretest		Posttest	
	SA/A	SD/D	SA/A	SD/D
1. Children are ready to learn to read and write when they are five or six years old.	83	17	28	72
2. Parents with low literacy abilities do not have the skills necessary to encourage reading in the home.	44	56	6	94
3. Reading is essentially a skill of decoding print.	61	39	44	56
4. The children of less literate parents have difficulty learning to read in school.	83	17	50	50
5. Years of schooling is a clear measure of literacy ability/achievement.	17	83	6	94
6. Children should know the letters of the alphabet and their corresponding sounds before they begin to read.	50	50	17	83
7. It is a good strategy to correct children as soon as they make an oral reading error.	44	56	6	94
8. Less literate adults are generally slow learners.	11	89	6	94
9. Encouraging children to sound out words is one of the best approaches to helping them learn to read.	78	22	44	56
10. Reading to children provides a solid literacy base for formal reading instruction.	50	50	100	0
11. Learning to read or write is systematic and sequential.	83	17	67	33
12. Formal instruction in penmanship is necessary so children can become good writers.	61	39	28	72
13. Single parents are less likely to read to their children than their married peers.	39	61	28	72
14. Illiteracy is a cause of social disfunction.	72	28	28	72
15. A lack of books in the home is a good indicator of a lack of interest in becoming literate.	50	50	28	72
16. Children's early encounters with print should focus on correct word recognition rather than meaning.	72	28	6	94
17. Materials for young children should be written with short simple words and sentences.	50	50	11	89
18. A child's literacy development begins very early in life—possibly at birth.	72	28	100	0
19. Beginning reading and writing practices exhibited by young children result from direct instruction.	44	56	11	89
20. Learning to read is a social process influenced by children's search for meaning.	22	78	94	6
21. Parents need to be good readers themselves so they can model reading for their children.	56	44	11	89
22. Rereading favourite stories to children will retard their reading development.	28	72	0	100
23. Learning literacy is a culture-and-value-free activity.	61	39	39	61
24. Environmental print (e.g., road and business signs, labels on products is a good source of text for young children to read.	39	61	94	6
25. Less literate parents are not sufficiently knowledgeable to support the literacy development of their children.	28	72	6	94
26. Children should be encouraged to be quiet and non-interruptive when being read to.	17	83	6	94

Table 1 (continued)

Items	*Pretest*		*Posttest*	
	SA/A	*SD/D*	*SA/A*	*SD/D*
27. Reading to a child is a good way to assess his/her reading development	77	23	94	6
28. Less literate parents need to upgrade their own literacy skills before they can assist their preschoolers develop an understanding of print.	56	44	22	78
29. Poverty is a cause of low literacy.	39	61	78	22
30. The low literacy levels of a significant number of the population is a cause of society's economic difficulties.	83	17	50	50

SA = strongly agree; A = agree; D = disagree; SD = strongly disagree.

children provided them with a base for formal literacy instruction (item 10). However, in the posttest survey, 100% agreed with this statement. As the workshops included considerable emphasis on how reading to children builds their concepts for print, it seems that the participants may more readily encourage parents to read to their children not only because it may be a pleasurable activity, but also because they want to inform these parents that such an activity provides the basis for future formal school literacy instruction.

Those items that addressed literacy as a sociocultural phenomenon (5, 14, 15, 20, 23, 29, and 30) were most representative of a change in participants' perspectives. Items 14 and 30 are of particular interest. Pre-workshop responses indicated that the participants generally held perspectives that mirror what is often reported in the popular press; that is, less literate adults are blamed for society's ills. The clients with whom these professionals interact are often unemployed and on social assistance. Many are unemployable because of a variety of social, emotional, or physical reasons. Only slightly more than a third of the respondents initially indicated that poverty was a cause for illiteracy (item 30). After the workshops, more than three quarters of the participants held this view. Similarly, initial responses to item 14 indicate that 72% of participants considered illiteracy as a cause of society's social ills. Only 28% held this perspective in the post-survey.

The apparent swift change in participants' responses from viewing literacy from traditional perspectives to those that view literacy in more comprehensive ways is surprising. Changes in belief systems generally occur rather slowly. One may ask what it was about the workshops that allowed this conceptual shift to take place so rapidly. The activities presented in the workshops placed the participants in literacy situations with which they were not familiar. For example, one activity demanded that they draw rather than write all the literacy events they were involved in both at work and at home during the previous 24 hours (Norton, 1988). The difficulties and frustrations many participants experienced doing this task, as well as their reluctance to show the results of their work to neighbors, were used as the basis for discussion about the literacy behaviors of their less literate clients. Another activity required participants to debate the merits of statements such as "Print is overused in our society as a medium of communication" or "The less literate population is

responsible for most of the crime in our city." Such debates were quite heated as participants took different sides in the discussion and attempted to sway others to accept their points of view. The overall input from the facilitators throughout the workshops, in addition to the participants' experiences with and their discussions of literacy during the sessions, allowed them to come to a new understanding of what it means to be literate and of the role society plays in that development.

Furthermore, participants had the opportunity to reflect on their own practice—how literacy is involved with it—and to discuss this issue with peers. In the workshops, they had occasions to identify how, when, and why they require literacy tasks of their clients, and to explore other means of communication rather than print for providing information. They were provided with the tools to investigate ways and means of collaborating with clients in attending to and completing document literacy tasks. They examined how they could recognize and support the existing positive family behaviors in order to assist in literacy development in the families they serve. They had opportunities to develop their own concrete examples and practical solutions to the literacy issues they face and the literacy issues about which they were previously unaware. In other words, because the workshops were predicated on a participatory model rather than the transmission of literacy knowledge, the facilitators encouraged and modeled what they wished the practitioners to do with their families. Because the community service providers were involved in developing their new awareness for literacy, the change in their perspectives on literacy, and the rate of that change, is not surprising.

Interviews

As noted above, time was provided during the workshops for participants to identify how they might include literacy activities as part of their professional practice. In other words, they were aware of specific ways that they could incorporate literacy events into their professional practice before doing so.

Two women noted that they were not able to put into practice what they had wanted to do. One had changed jobs and was trying to "get a handle" on it before she "got anything going." The other had been ill for about six weeks immediately following the workshops. She was glad that she had been contacted as it reminded her that she had intended to set up a little desk with writing materials in her office for visiting children. For most of the respondents, however, there was overwhelming enthusiasm for discussing the literacy events occurring in their practice.

There appeared to be few differences among the groups of professionals with respect to incorporating literacy into their practices. They included the donated books in their repertoire of professional items and/or left them for client use in waiting rooms. Some even took the time to read a book or a part of one to their child clients during a visit. A few participants organized small lending libraries in their clinics or offices; others set up writing centers where youngsters could draw or write while their parents were being attended to. Two participants were trying to establish a routine of having reading volunteers act as model readers for parents during clinic hours. In short, each of the

14 had found some way to highlight literacy activities in their professional routines. One respondent noted, for example,

> There is one home I go to where there's a new baby and a three-year-old. He's a going concern and jealous of the baby. So I give him one of the books to look at while I take care of the mom and the baby. When I have finished with them and if there's time, I read the book to him. If I am rushed, I ask him which page he likes best and we talk for a minute about it.

When asked if she would have acted similarly prior to the workshops, she replied "I never had. I knew it was important to read to kids but I never thought that had anything to do with my work—only for my own kids."

Another respondent was enthusiastic in her discussion about putting the books in her clinic waiting room.

> I never thought that having books in my clinic would have such an effect. I've even had a couple of mothers remark that it is great to have something to read to their children while they wait. Even those whom I know don't read well look at them with their children.

Another participant commented that as a result of her taking a minute or two to share a book with her child clients, she is now referred to as "the reading nurse."

Other respondents indicated that they had set up a little table in their offices so that visiting children could write or draw when the practitioner was talking to other siblings or their parents. One participant was successful in encouraging her colleagues to set up a lending library of books for interested parents. "Our library is nothing much—about 50 books, but as we see people often on a daily basis, they bring their books back—mostly. We've lost a few, but what the heck, it's worth it."

Many of the participants felt constrained by the lack of human and material resources to put into practice what they now thought to be important. It should be noted that many of those who attended the workshops indicated they were required to share the information they learned with peers in their organizations. However, several noted that the enthusiasm they felt for the topic of literacy got "lost in the translation" to others.

Perhaps more important, interview data highlighted that the majority of the practitioners were more aware of their own behaviors with respect to literacy. Previously, as some respondents noted, they would hand forms to adult clients with a short explanation of how they might complete them. As a result of the workshops, when they felt that their clients were experiencing difficulty with literacy, they spent more time explaining what the forms demanded, or in some instances offered to fill them in for the clients. In addition, the respondents indicated that they made this offer with greater sensitivity than previously. "I'm much more likely to talk through a form now than just ask someone to fill it in. Sure, it takes more time, but in the long run, we get it done right and perhaps even faster," noted one respondent. Several participants indicated that they were more conscious of how print is presented in their offices or clinics. One woman put the comments of her peers succinctly when she stated,

> We used to print everything in capital letters for notices on the bulletin board etc. Now I know that just makes it harder for people to read. So now, we are more careful about how we post things. We are starting to use colored paper too so that when we phone clients, we can say, "that information is on the yellow sheet we gave you." I think this all helps.

Not all the respondents viewed having a literacy component in their professional practice as a positive move. One woman in particular was of the opinion that it just meant more work for her.

> I have so many clients that I see every day and so many of them are in stressful situations that I really am the only person between them and despair. This is hard enough for me to handle without having to think of literacy. With all the cutbacks and all the extra work we have to do, I don't think we should be asked to involve ourselves in our clients or their children's literacy learning. We are not experts in this field, like you are not in mine. Sometimes, I think I would do more damage than good pushing literacy on them.

However, such comments were rare; generally those who were cautious about the role of literacy in their practice felt they needed greater support from colleagues who understandably were less enthusiastic than those who had attended the workshops.

Reflection

The results from this study demonstrate the power of literacy inservice for community service professionals. Their shift in understanding of literacy and their genuine efforts to incorporate literacy into their practice are encouraging. Whether such perspectives and practices will be maintained over time is difficult to predict. As a result of projects such as Alberta's Action for Health, literacy development is becoming more recognized as a component of healthy communities, highlighting the greater awareness that literacy acquisition is not confined to the schools. There appears to be a growing awareness that the responsibility for moving both children and less literate adults toward more comprehensive literacy abilities rests with the full community.

There may be some argument that encouraging community service providers to bring marginalized families to accept mainstream literacy practices affirms a deficiency model for literacy acquisition. Such an approach may even be viewed as paternalistic. By focusing on practices such as reading to children or involving them in print production practices like list writing, marginalized adults may infer that their current family practices are deficient. On the other hand, it appears that schools are reluctant to change their expectations for children. Therefore, youngsters who live in less literate homes are at a disadvantage as they enter school, where they are expected to have acquired certain skills that middle-class children have already acquired. Delphit (1992) maintains that less fortunate families are advantaged when they are shown how to succeed in mainstream society. The literacy activities suggested and/or modeled by community service providers is a move in that direction while supporting and extending those literacy practices that currently occur in families.

Children from poor families may need more extensive exposure to literacy activities for them to achieve success. The community service providers in this

study are probably more aware of the negative influences of poverty than others in society. If they are sensitive to the role literacy might play in the lives of their children and adult clients, and if they address literacy in a supportive, considerate, and appreciative manner, they may be advocates for the positive parental routines that these families currently practice as a launch pad for the more exacting academic demands that the school requires. Furthermore, when community service providers are aware of and highlight the use of literacy in their own practice in socially significant ways, they will do more than just suggest add-on literacy tasks to families whose lives are already overburdened. They will demonstrate that literacy is more than successful achievement in school literacy tasks. They will support a perspective that the family and community social contexts are central forces for learning that go well beyond mainstream school literacy practices.

Conclusion

Community service providers who are knowledgeable about how literacy is acquired, who are aware that less literate families may provide an environment conducive to literacy learning outside the practice of literacy itself, and who model the role of literacy in their own professional practices, may open possibilities for their client families that enhance rather than threaten the cultural portraits in those families. The suggestions provided by community service providers for the inclusion of more overt literacy practices in families may establish a range of activities that are safe and enjoyable places for adults and children to explore new ideas together and co-construct new knowledge in their own cultural milieu.

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Mentor-Supported Literacy Development in Elementary Schools

This article reports on a study of volunteer mentorship programs intended to support literacy development in early elementary grades. To provide a context for the study and its questions, it reviews issues related to the importance of early literacy development, various forms of early intervention, mentorship programs, and evaluation issues for both literacy programs and mentorship programs. In this first phase of the research program, the researchers sought to learn children's, mentors', and teachers' perspectives on the quality of the relationships established and the academic benefits of the program. The results indicated that such programs are a promising direction for further development and research work.

Dans cette article, on fait le reportage d'une étude des programmes de mentorat qui visent à appuyer le développement de l'alphabétisation chez les élèves au début du niveau scolaire élémentaire. Afin de pouvoir situer cette étude et ces questions, on fait la révision des points saillants du développement de l'alphabétisation hâtif, des diverses formes d'intervention hâtives, des programmes de mentorat et des questions concernant l'évaluation des programmes d'alphabétisation et de mentorat. Dans de premier volet du programme de recherche, les chercheuses voulaient connaître le point de vue des élèves, des mentors, des enseignants et des enseignantes vis-à-vis la qualité des relations établies et des bénéfices académiques du programme. Les résultats indiquent que de tels programmes de mentorat seraient prometteurs pour de plus amples travaux de développement et de recherches.

Unlike traditional teaching where everyone is supposed to learn the same curriculum, often at the same pace—despite personal interests, abilities, or conflicts—mentoring asks that these very interests and conflicts be the heart of the relationship between the adult and the youth. Thus personalized care and attention to individual needs lie at the core of mentoring (Flaxman & Ascher, 1992).

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All children need supportive interaction with caring adults to learn and grow. Increasing numbers of children are at risk of not having as much as they need for the mental and moral development that will enable success at school (Brandt, 1993). Brendtro and Long (1995) and others have observed that children who are securely attached to adults learn trust, competence, self-management, and prosocial behavior. In the past educators have generally waited for some children to fail at school and then offered remediation. Slavin, Karweit, and Wasik (1993) have likened this approach to a community with contaminated drinking water choosing to spend funds only on treatment of sick people rather than on a water treatment plant.

With the view that prevention is preferable to intervention, we have collaborated with two schools to develop and research volunteer mentorship programs to support the literacy development of children in kindergarten, grade 1, and grade 2. The programs entailed having adult mentors spend an hour a week with a child to visit, read together, and carry out literature response activities or other language development and reading support activities. After mentorship sessions had proceeded for six to eight weeks, the researchers interviewed children, mentors, and teachers to learn about the quality of the relationships and the value of the academic support. Because mentors were not trained teachers and did not have a specific curriculum to follow, there were real questions about how beneficial the reading support activities would be. Because nonrelated adults spent only an hour a week with young children, it was also questionable whether the relationships would have enough intensity to qualify as mentoring rather than as more limited tutoring relationships. This article presents an overview of issues and questions related to early literacy development and to mentorship programs, describes our development work, and discusses findings from the first phase of our research.

Issues Related to Early Literacy Development Initiatives

The Problem

In a review of the topic of preventing school failure, Slavin (1994) noted the importance of children learning to read in the early grades. Longitudinal studies have shown that disadvantaged grade 3 children who have failed one or more grade levels and are reading below grade level are extremely unlikely to complete high school (Kelly, Veldman, & McGuire, 1964; Lloyd, 1978). At the same time, remedial programs beyond grade 3 have few if any effects (Kennedy, Birman, & Demaline, 1986).

In his review of preventing school failure, Slavin underscored the critical role of children's grade 1 experience.

> Almost all children, regardless of social class or other factors, enter first grade full of enthusiasm, motivation and self-confidence, fully expecting to succeed in school.... By the end of first grade, many of these students have already discovered that their initial high expectations are not coming true, and they have begun to see school as punishing and demeaning. Trying to remediate reading failure later on is very difficult because students who have failed are likely to be unmotivated, with poor self-concepts as learners. They are anxious about reading and they hate it. (p. 11)

Although these are strong words about how children can experience grade 1, our previous video program research with junior high students' memories of elementary grades (*Listen Up!* 1997) confirms that children in grades 1 and 2 are highly sensitive to both explicit and implicit information about their performance in school.

Forms of Early Intervention

Concerns about supporting children's early growth and experience are not new, and many different kinds of initiatives have been employed: birth to age 3 interventions, preschool, and kindergarten models with varying day length, retention, developmental kindergarten, transitional grade 1, smaller class size, instructional aides, nongraded primary classes, one-to-one tutoring, Success for All, and improving curriculum and instruction. In reviewing evaluations of these strategies, Slavin et al. (1992-1993) noted that approaches that incorporate one-to-one tutoring of at-risk grade 1 children are most effective for preventing early reading failure. Further, these reading outcomes are largest and longest lasting when the tutoring is done by teachers using well-developed curriculum and instruction such as Reading Recovery. The lasting effects of Success for All were the largest, but this is a multistrategy program that continues through the elementary grades.

Barr and Parrett (1995) also concluded that the best way to meet the needs of at-risk youth at the elementary level is through schoolwide programs that integrate the various approaches into a comprehensive effort. They also acknowledge, however, that with the demands placed on schools by increasing numbers of at-risk children, schools must begin implementing practices that are known to work. A common feature of prevention and intervention programs or strategies is the need for special funding. Although some schools serving large numbers of disadvantaged children may be targeted for special funding, other schools may have no special funds for services for at-risk students in their classrooms. Although one-to-one tutoring of low-achieving grade 1 children by a specially trained teacher may be the single most effective strategy, this can require hiring an additional teacher for each grade 1 class.

The Mentoring Movement

Flaxman and Ascher (1992) described mentoring as representing a shift in vision for antipoverty efforts. They noted that by the 1980s most compensatory education and youth employment programs were viewed as only marginally successful in forestalling academic failure or dropping out of school, or in making youth employable for anything but low-skill jobs. They criticize previous intervention programs for having focused solely on imparting skills or manipulating the youths' motivations, attitudes, or behaviors, rather than working with the young people as "complex, physical, psychological and social beings in environments and institutions over which they had little control" (p. 2). Any caring and help that was provided to recipients in these programs was fortuitous and unplanned and not considered part of the programs' effects. Mentoring, by contrast, is conceptualized as a more holistic way to respond to the whole child or youth.

> In attempting to duplicate how people behave under natural conditions, its [mentoring's] goal has been to give them something closer to what they need. As

> an ideal, mentoring bypasses the scientism and technicism of many educational and social programs, which appear remote from lived experiences. In this, it has appeared to be a sensible and socially moral response to the difficulty of growing up in the United States today. (p. 2)

Smink (1990) has insisted that the mentor's most critical function is to provide moral support and a sense of caring. As social learning theory suggests, when younger people feel liked and cared about by their mentors, they will be more likely to identify with their mentors and to want to imitate their behaviors and attitudes. Similarly, Flaxman and Ascher (1992) emphasized the importance of mentors and mentees having joint activity, personal attraction, frequency of interaction, and familiarity in order for trust to develop and for the younger person to be inclined to look to the mentor as a helper or caretaker. The notion of moral support, as used by Smink (1990) above, however, is probably not reducible to things that can be counted and measured like frequency of interactions. MacIntyre (1981) explained moral action as action that preserves the continuity of the story one is living—the story of being someone's daughter, someone's friend, someone's teacher. Thus moral support from a mentor would manifest itself in interactions that preserve the continuity of the story of the mentor being one who cares for and supports the growth of the child.

Brodkin and Coleman (1996) have defined *mentor* as "one who provides one-to-one support and attention, is a friend and a role model, boosts a child's self-esteem, enhances a student's educational experience" (p. 21) and mentoring as "meeting regularly over an extended period of time with the goal of enabling a special bond of mutual commitment based on the development of respect, communication and personal growth" (p. 21). Flaxman and Ascher (1992) state that the heart of natural or spontaneous mentoring has always been to provide assistance during a period of transition such as that from childhood to adolescence or from novice to expert and that the goal of mentoring is to help the child or youth gain social learning and command over tasks of everyday life in school, work, or society. This occurs through jointly carried out activities in which the mentor alternately models, teaches, manages, questions, and structures a task for the child or youth.

Mentorship Programs

During the last several years a number of mentorship programs have been initiated in the US, and more recently in Canada, particularly in Ontario. The programs vary greatly in size, longevity, target population, and purposes. Described here are programs for elementary students that are based in schools.

Our Lady of the Lake University in Texas has been involved in a mentoring initiative with an inner-city elementary school. Staudt (1995) explains that "this very successful mentoring program involves the matching of college students and at-risk elementary students in order to improve the elementary students' attitudes, behavior and self-esteem" (p. 5). Mentors and mentees engage in a variety of activities "such as reading to their students, taking them to the university, playing games. Field trips are allowed after a trusting relationship is established between the mentor and the student" (p. 7). The mentors can help the students with academic school work, but "the mentoring program is not to be used as a tutorial program" (p. 7). Ongoing communication between teacher

and mentor provides both mentor and teacher with strategies to meet the needs of the students. Mentoring occurs primarily at the school, but not inside the classroom. The university is located one block from the school. Mentors sign in on arrival and wear badges for identification purposes. Written permission must be provided by parent or guardian before the mentoring process begins. According to Staudt, this program is making a significant difference to the lives of elementary students.

The CUNY/BOE Student Mentor Program is a college-based program that also serves elementary children. This program offers course work and academic credit for mentoring, which is a component of college courses in educational psychology, sociology of urban education, field work in child/adolescent development, and mentoring internships. Training occurs in classes on campus following a model that provides multiple levels of continuous support from peer groups, coordinators, and scheduled weekly mentor-mentee get-togethers. Academic credit serves as an incentive for mentoring (Flaxman & Ascher, 1992).

Excellent Beginnings is an early childhood mentoring initiative that resulted from an understanding that children, particularly African-American children, lack male role models (Walter, 1995). Teachers and members of the community wished to encourage at-risk students to stay in school and to increase the numbers of African-American male elementary teachers. High school students were sought as mentors for elementary students. Three of the 14 schools that applied for funding for this program were chosen to participate. Consideration was given primarily to early childhood proposal initiatives that could successfully integrate the school and community. The criteria for all proposals included curriculum and classroom management, parent involvement, high school mentors, higher education collaboration, training, guidance, and staffing. One hundred African-American preschool and kindergarten children, as well as students in alternative classes for older elementary students attending the Lincoln Center school in Ruston, Louisiana, participated in this program. Grade 3 children and younger students were targeted because "research indicates that is a pivotal point when African-American males become turned off school" (Walter, 1995, p. 2). Students came from single-parent families suffering low self-esteem due to economic hardship.

Although the largest and most widely recognized programs for at-risk students are in the US, Brown (1995) recently identified a number of Canadian mentorship programs in Ontario. Each program is unique in terms of purpose, context, and age of mentors. Prime Mentors, for example, is an in-school enrichment program for elementary high-risk, creative youth. Big Brothers is an out-of-school initiative that matches boys from single-parent families to men. Big Brothers, Big Sisters (1995) has recently developed an In-School Mentoring Program, which is a partnership between the BBBS and the Board of Education in Hamilton, Ontario. This is a highly structured program developed after the BBBS model. Community Mentoring is an initiative that involves community volunteers acting as mentors in North York schools. Three intergenerational programs include: the Seniors Independence Program, which involves matching adults with at-risk youth in Scarborough, Toronto, and North York; the Volunteer Grandparents Program, which links grandparents

to 2-6-year-olds; and the Toronto Intergenerational Project, a pilot project linking seniors with elementary students identified as at risk.

Programs vary greatly in terms of the relative emphasis given to providing a relationship or providing academic support. In the program at Our Lady of the Lake University described above, for example, there were clear warnings against the program becoming a tutorial one. Some mentoring programs, however, focus specifically on strengthening academic skills. HOSTS—Help One Student To Succeed, for example, is a national program in the US that helps students of all ages who are experiencing reading difficulty. Each student is matched with a trained mentor who provides "individual attention, motivation and support" (Smink, 1990, p. 12). Similarly, One PLUS One is an initiative with a goal of increasing literacy of at-risk children and youth (Flaxman & Ascher, 1992).

Some programs focus on a wide array of skills or are based on whatever the student needs. The goals in such programs are intended to respond to the needs of the people they serve. As an example, KIT—Keeping In Touch With Students is a well-established program that has been operating for at-risk junior high students since 1987. In this program teachers mentor students in their own schools, using weekly meetings to provide personal tutoring and counseling (Flaxman & Ascher, 1992).

Evaluation Issues

Considering how best to research or evaluate volunteer mentorship programs intended to support literacy development in early elementary school has not been straightforward. Typical measures of the effectiveness of one-to-one tutoring programs have been immediate reading outcomes and longitudinal measures regarding retention, placement in special education, or other measures of actual school success or failure (Slavin et al., 1993). In a review of five one-to-one tutoring programs, Wasik and Slavin (1993) identified difficulties with both the availability of standardized tests that were suited to the curriculum of the tutoring and the practice of dropping children from a program if they were not responding successfully. They pointed out that it can be increasingly difficult for students to demonstrate sustained gains with each passing year because the range of all students' scores on tests also increases. They drew attention to the need both for authentic performance assessments and for more ethnographic studies or microanalysis studies to reveal the cognitive and motivational processes activated in tutoring, that is, how it is that at-risk children learn to read in tutoring.

In evaluations of mentorship programs, outcomes of interest have been increased academic success and persistence. In a discussion of the evaluation of mentorship programs, Flaxman and Ascher (1992) suggested that the amount of time the mentor gives to mentoring largely determines how good the mentorship can be. Given the importance of the quality of the relationship in mentoring, they also emphasize that more qualitative studies are needed to clarify or verify the nature or intensity of mentorship relationships. As well, if academic support is intended to be an important component of the mentorship, the planning skills of the mentor warrant attention. Brown (1996) observed that mentorship program developers have generally lacked funds for substantial

evaluation studies. Accordingly, evaluations of in-school mentoring programs have typically used pre- and post-attitude and achievement measures. Most such programs have been with youth rather than young children.

Description of Program Development

In January of the school year we worked with two schools to initiate volunteer mentorship programs to support literacy development in young children. Mentors were adults who came to the school for at least one hour each week to be with one child. The hour was spent visiting while sharing a snack, doing a language development activity, reading books together, and doing literature response activities. The children selected books to bring to the sessions, and sometimes the mentors also brought books of their own. Mentors included university and college teacher education students, parents, retired teachers and principals, friends and relatives of school staff, and employees of a nearby bank. Mentors were provided with brief orientation sessions and handouts containing ideas on how to establish a relationship with a young child, how to share books with a child, and how to do paired reading with a child.

Both schools were in the same large school district in a major city in Alberta. School A was identified as 40th on the list of high-needs schools in the district, and School B was fourth on the same list. School A assigned mentors to all grade 1 children, most of the grade 2 children, and a few of the grades 3 and 4 children. School B assigned all of their mentors to kindergarten children. The teachers considered the needs of children and the preferences and characteristics of the mentors as much as possible when matching. For example, children who already had considerable relationship support outside of school, but who struggled academically, were matched with university students who were eager to try new instructional ideas that they learned at university. Children who appreciated a lot of personal attention and time to talk with adults were matched with people who offered maturity and a comforting presence. Mentors were also invited to indicate any preferences they had for the characteristics of a child they would like to work with. When possible the hobbies and interests of the mentor were also considered in matching.

Data Collection

This study reports on the interviews that were conducted with children, mentors, and teachers six to eight weeks after the weekly mentorship sessions had begun. In this research we hoped to learn about how the children and mentors experienced the mentorship sessions both in terms of the quality of the relationship and in terms of the academic support provided to the children.

The interview schedule used with children included the following questions.

1. You've been participating in a mentorship program. Someone comes to the school every week if they can to spend time doing things together with you. What do you do together when they come?
2. Do you like doing those things with your mentor? Do you enjoy it?
3. What would make it better or more enjoyable?
4. Is it helpful for you? ... How does it help you?
5. What would make it more helpful?

Children were interviewed in groups of three, asking each child the same question in round-robin style. Probing questions were used to clarify children's responses where necessary. Two researchers attended all interviews, with one researcher asking the questions and the other recording responses and adding additional follow-up questions. All interviews were audiotaped and transcribed. Interviews were conducted with all 27 participating children at School A: 15 in grade 1; 9 in grade 2; and 3 in grades 3 and 4.

The interview schedule used with mentors included the following questions.

1. To start, could you please introduce yourself? Are you a university student, do you work somewhere else, are you retired? ... How did you learn about the mentorship program?
2. How long have you been a volunteer mentor at this school?
3. How many children do you work with? At what times do you meet with them?
4. Can you describe some of the things that you do together with the child?
5. How has the nature of the activities and the feeling of the session changed over time? ... Was there a particular turning point?
6. Can you talk about the relationship with the child a little more? How did it feel at the start? What influenced it? If it changed, how could you tell it was becoming different?
7. Have you seen growth in the child? How would you describe it?
8. What are the challenges in the role that you have?
9. What are the pleasures or satisfactions?
10. What would make the sessions work even better?
11. What additional preparation would you have found helpful?
12. Would you recommend volunteer mentorship work to other people? What would you say to them about it?

Most mentors were interviewed in groups of two or three, asking each mentor the same question in round-robin style. Some of the mentors were interviewed individually. Interviews were conducted with 26 of the 38 mentors: 16 from School A and 10 from School B. (Two mentors worked with two children each.) Two researchers were present for the interviews, which were audiotaped and transcribed.

Findings

As the mentorship sessions had been in progress for only six to eight weeks, our first question attempted to determine whether the children and mentors experienced their relationships in a positive and significant way. We wondered whether there was enough intensity for these to count as mentorship relationships. At the same time, given the lack of research on mentorship programs with young children, we were not sure what intensity should look like in such a program. Our second question was whether the reading support component of the sessions showed benefits or promise. Although we had made some handout materials available to mentors, we had presented these in a low-key manner so as not to intimidate anyone. Our mentors had diverse backgrounds, and our orientation objective was to communicate that this was something they

were all capable of doing. Thus we were interested in everyone's perceptions of the value of the academic support provided by mentors.

The Mentorship Relationships

At this point in the mentorship program it was evident that mentors were finding the relationships satisfying in that the children's responses to them were gratifying. The following excerpts from mentors' interviews give examples of how mentors expressed the significance of the mentoring sessions to them.

> And just to be able to see that when I walk into the room he knows that it's our time, and he has a big smile on his face and he's very excited. That just give me a good feeling all over.
>
> She sees me and she's all happy and smiles.
>
> When he's with me he talks now the whole time.... I get great satisfaction out of knowing that that's going to benefit him too just by having a wonderful, really good interaction with somebody.
>
> If it brings a little bit of happiness into this boy's life to think that somebody would actually take the time and spend it with him and make a difference, that's where you see the reward.
>
> If people could realize how little it takes to turn a child around ... their self-esteem ... a half hour a week.

In the mentors' giving to the children, it was clear that the children were giving back a great deal in return. The children's obvious appreciation of the mentors made the time spent in mentoring significant and worthwhile for mentors.

The children's interview transcripts were replete with expressions of appreciation for their mentors. It was clear that for them, they had new and significant relationships with someone they loved or someone who brought them a tattoo or a newspaper article or book on their favorite interest such as figure skating or cats. Listed below are examples of how children expressed their appreciation of their mentors.

> It makes me feel proud of myself ... and she's proud too.
>
> I love my mentor!
>
> I am happy when she comes.
>
> I like it because my mentor is nice ... and she's nice to be with ... and I like to read to her.
>
> I like her coming and because I love singing songs to her ...
>
> It makes me feel good.
>
> He reads books, and he likes me lots.
>
> It's fun to talk to her.
>
> It makes me feel happy and proud when she comes.
>
> I like him very much, and I like it all the time when he comes, and I'm happy.
>
> She helps me read books that I can't read ... and she loves me.

As these excerpts illustrate, the children were highly appreciative of having someone special who was there just for them. They perceived the mentors as

liking or loving them. Conversations with teachers confirmed children's interviews as teachers described how the children would always be ready early with books under their arms ready to meet with their mentors. The mentor had quickly become a *someone* in their lives, someone who was nice, someone who liked them and was proud of them, someone who read to them, someone the child could sing songs to and talk to. It was fun to talk to one's mentor. Mentors made children feel good and also proud of themselves. Enhancing self-esteem is a primary goal of mentorship programs with a relationship focus.

Academic Support in the Mentorship Sessions

Because the mentors had not had an intensive training program on how to share books with children or support children's reading, we were interested to learn how children and mentors experienced the academic component of the mentorship program. In our interviews, mentors demonstrated an obvious engagement with the academic component of their sessions. They showed that they were thinking about the child as a reader, the child's skills and progress, and what they were doing to support the child's engagement and growth.

The following two excerpts show examples of mentors' thinking about the importance of the child's interests.

> Using different reading material has helped. Instead of always just reading him novels, we read comic books or Nintendo stuff and things like that that he's maybe more familiar and comfortable with, so that's helped.

> The students' reading levels are not very advanced at this point in time so I think it's very important that the children have a little bit of say in what they're reading. It has to keep their interest and you certainly want to keep them liking the program.

Mentors' comments revealed that they noticed and looked for growth in the child's reading. The following are examples of such reports.

> I also tape-record her too when I go see her and have her read. So the last few times that I've been doing this I'll tell her, "You select your book that you want to read." ... Then I'll tape-record it on the second read, and then I'll go through the words that she doesn't know and write those down. And I played it back for myself last week after I got home, to the very first time she read and to this time, and it's a lot more fluent.

> He's much better than he was earlier. It's great. We're working on the alphabet right now, and he doesn't really recognize his letters, but I'll ask him what a letter is, and so then he'll go through A-B-C-D. He'll do a little song.

> We've been working a lot with stories right now, and he recognizes now that books have titles, they open, and you read left to right. And I've tried to get him to follow along with the print and stuff with me while I read and recognize certain letters.... We're working on the letter S, and he really likes the sound of S, and he always says "snake." And he'll pick out the letter S in the text now.

> She usually brings an easy book to read to me. Then I read her one that's a little bit harder. She remembers what I've read and she reads it back to me.

Many of the mentors' stories illustrated their attention to and concern about comprehension and meaning in reading. The following are examples of the different ways they talked about focusing on and supporting comprehension.

> He would be a character and I would be a character.... He'll pick up cues from me when I'm reading about something, and I'm sure he's thinking about how I'm interpreting.

> And I think helping reading stories and stuff like that encourages literacy as well, and talking about your stories and just having an imagination ... just being able to imagine what the story is going to be like or make your own kind of story up, and being able to think about it and then communicate that into language.

> What I really find fascinating about her is that she would love to read you a story instead of me reading her a story.... And so she would just love to sit there and read the story to me about three different times, and every time using a different version.... She doesn't read the words, but she looks at the pictures, and then she just tells the story from the pictures. And then from what she's heard before, if the story's been read to her before, she just kind of makes up her own story.

> He usually brings an easy book to read to me—one that he's read before. The book is simple so he doesn't have to concentrate much to comprehend it. I try to read him a more challenging book and make him think and talk about all the details and background and what's going on in the environment of the story. Then I know he has to stay tuned in to comprehend it.

Finally, mentors also talked about how they helped children with difficult words in reading. Here is one example.

> What we do is, he will try to pronounce the word, and I don't immediately correct him. I'd rather have him try to sound it out, and then if he's just at a roadblock, then, before he has frustration, I'll just go, "Okay, let's look at that word together." And so we'll sort of sound it out by the syllables, and that's how I handle situations like that.

It appears that for each mentor there is a meaningful story about how literacy has been supported in the mentorship sessions. The full stories are probably as different as all of the children and mentors are. It is clear, however, that time is spent on reading, the mentors work to make sense of the children as readers, mentors have objectives or purposes in mind, children and mentors respond to one another, and the mentors discern progress.

In School A, where grades 1 and 2 children had mentors, the teachers reported that children showed more confidence both in their behavior and in the work they produced in class. In School B, which was fourth on the list of high-needs schools in the district, only the kindergarten children had mentors. The teacher also taught kindergarten in another school in the mornings. She noticed that the children in her School B kindergarten class were very quiet and not inclined to vocalize in class. She observed, however, that after their first 20 minutes with their mentors, they enjoyed talking to them nonstop in their one-on-one sessions. As the mentorship program progressed, more of the children also started speaking more in class, joining in songs, and putting up their hands to answer questions. In the following interview excerpt a mentor from this school describes how a child came to respond quickly to the one-on-one interaction.

> When I first met him, he didn't want to really talk; he was very shy. And the teacher had mentioned to me that he really needed to work on his vocabulary

> and his language and talking about things, and when I came again, he just wouldn't stop talking.

For young children confidence and willingness to try activities presented by the teacher can serve to support further their immediate academic gains and their long-term constructive habits and attitudes as students.

The children told us in many different ways that their mentors were helping them to learn to read. The following excerpts from children's interviews give examples of how they expressed this.

> She's always there for me, and if I miss a word she's always guiding me, she's guiding me along, she's reading with me, the same word.
>
> She helps me with words I don't know so it's fun!
>
> She helps me with the words when I get stuck because I get stuck a lot.
>
> It helps me read better.
>
> She helps me sound it out when I don't know.
>
> He breaks up longer words into smaller words.
>
> I like it because I can read long words
>
> It's helpful because I can read the big, fat words.
>
> She explains it so it can be something fun!
>
> She shows me the word, then I remember it next time.
>
> And it's fun reading books!! And it's really, really, really fun writing words down on the paper.
>
> I know new words because my mentor read them to me.
>
> She reads it to me, then I can read it back to her.
>
> You learn new words and stuff ... and all the rhyming words and all—you read better.

The child's statement "She helps me with words I don't know so it's fun!" pulls together so much of what all the children were saying. Throughout the interviews the children said that the whole activity of reading with their mentors was fun. We expect that this is probably a general tribute to the one-on-one attention, praise, and mentors' efforts to support interests, challenge, and comprehension. Children also stated that mentors made it possible for them to read harder books than they otherwise could. Overall, however, the children spoke insistently about the value of mentors helping them with difficult words. As we puzzled over this focus in the children's comments, we searched our own experiences for an analogy to help us understand the children's perspective. Finally, we thought about our own experiences of learning to use new computer systems and software. The children's statements and our own memories of acquiring some computer literacy help us to appreciate how frustrating it must be for some children to try to learn to read without the one-on-one help provided by caring, supportive mentors. One can hear in the excerpts above that reading, the mentor, fun, and increasing competence have become linked in the experience of these children for whom mentorship and a reading support program have become a powerful combination.

Discussion

These findings suggest much promise for mentor-supported literacy development for young children. The children's appreciation and receptivity serve to keep mentors engaged. It is perhaps because the children are so young that they trust and respond to the mentors so quickly. The children enjoy the mentors' attention and one-on-one time for talking and sharing interests or songs. Time with mentors makes them feel happy, good, and proud. Self-esteem is supported. The mentors make sense of the children as readers and work with their interpretations to try different approaches and to look for growth. The children enjoy reading and learning to read with the support of their mentors. Reading with their mentors is fun. The children's pride in their work with their mentors spills over into increased confidence and participation in classroom activities. As preventative programs such initiatives appear to warrant further development and research.

In the second phase of the research program we plan to learn how mentors were so successful in such short periods. This component includes case studies of a number of mentor pairs to document strategies used by mentors and experiences reported by both children and mentors over the duration of the mentorship relationships. The third phase will focus on how relationships are built or on how they evolve over time between nonrelated adults and young children. Findings from these studies can serve to inform orientation and training of mentors and program coordinators for new programs of this kind. In a concurrent study we are documenting the experiences of other existing programs to clarify a variety of volunteer mentorship program models for a broader range of grade levels. To complete the research on the program in School A, assessment data from grades 1 through 3 will be examined for the grade 1 class to participate in the mentorship program.

We have been strongly impressed with the immediate value and long-term promise of volunteer mentorship programs to extend support for the social, emotional, and academic growth of children in schools. It appears that such programs may be able to make a difference to the life chances of individual students. If such programs become more commonplace, our communities may also find such collective caring experiences to be restorative. We will give the last word to one of the mentors who said, "It's a good program and I'm glad I did it!"

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Beyond the Benchmarks: Toward a View of Adult ESL Programming in a Literacy Framework

With the introduction of the Canadian Language Benchmarks, a matrix for describing English proficiency among adult immigrants, ESL educators have been provided a tool for communicating with others regarding the educational aspirations of adult immigrants. In this article I contextualize the significance of the Benchmarks in broad educational and social terms rather than, more traditionally, as relating to enhanced outcomes or effects only on second language proficiency. To this end I have situated the Benchmarks relative to another, more universally applied contemporary measure of adult language proficiency, namely, the literacy levels developed and articulated through the International Adult Literacy Survey (IALS). Education is presented as a vehicle for the development of social cohesion in a culturally diverse society and economy. The article points to the potential for aligning the Benchmarks with other systems for describing adult competences to enable more systematic integration of the experience, skills, and ideas of newcomers through Canada's adult education systems.

Le Canadian Language Benchmarks, une matrice permettant d'écrire la capacité linguistique en anglais des immigrants et des immigrantes adultes, fournissait aux enseignants et aux enseignantes de l'anglais langue seconde (ESL) un outil pour communiquer avec d'autres les aspirations éducationnelles des immigrants et des immigrantes adultes. Dans cet article, je place dans son contexte l'importance des CLB en des termes éducationnels et sociaux généraux plutôt que selon la tradition, se reportant uniquement aux résultats ou effets accrus dans l'acquisition d'une lange seconde. À cette fin j'ai situé les CLB par rapport à un autre, le International Adult Literacy Survey (IALS) pour mesurer les niveaux d'habileté linguistique, une mesure de compétences linguistiques plus contemporaine et plus universellement appliquée. On présente l'éducation en tant qu'un moyen pour le développement de la cohésion sociale dans une société culturellement et économiquement différente. Cet article indique la possibilité d'aligner les Benchmarks sur d'autres systémes pour décrire les compétences des adultes permettant une intégration systématique plus grande de l'expérience, des habiletés et des idées des arrivants dans les systèmes canadiens d'éducation aux adultes.

Traditionally, much of the teaching and learning that has occurred in adult English as a second language (ESL) programs has remained a mystery to mainstream educators and to the general public. Generally, the sources of funding for adult ESL (e.g., Secretary of State, Citizenship and Immigration Canada) have been different from the sources for other kinds of education, in recognition of the foreign origins of newcomers rather than their Canadian goals. ESL programs have also tended to be physically isolated. They have typically been associated with nontraditional educational venues: church basements, community centers, cast-off school sites. In many instances the teacher

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was and continues to be one of the few links between the geographic community and her students. The ESL teacher's position has come to include the role of interpreter of culture and societal systems for immigrants. Classroom-based strategies to facilitate social integration have tended to be technical and teacher controlled. For example, a teacher may assign ESL students to interview three Canadians about their occupations. The expectation is that students will return to class and report on their experiences. The assumption inherent in such an approach is that through increased contact students will begin to feel more comfortable speaking with Canadians as well as gain practical understandings about life in Canada. Unfortunately, in many cases the anticipated outcomes remain remote from the learner. Newcomers faced with the complexity of just reaching out to Canadian-born individuals, let alone situating themselves in contexts that provide opportunities for genuine human communication, may even lose motivation to meet and talk to more established Canadians about anything more consequential than the weather.

This article explores the possibilities for the use of the recently introduced descriptive scale of language proficiency, *Canadian Language Benchmarks* (CLB, Citizenship and Immigration Canada, 1996). It seeks to contextualize the significance of the Benchmarks in broad educational and social terms rather than more traditionally in relation to enhanced outcomes or effects on second language proficiency. To this end I have situated the Benchmarks relative to another, more universally applied contemporary measure of adult language proficiency, namely, the literacy levels developed and articulated through the International Adult Literacy Survey (Statistics Canada, 1995, 1996). The argument I present is supported by the notion that adult education in Canada should be distinguished by an articulated philosophy to increase the social cohesion of a culturally and linguistically diverse population. By *social cohesion* I mean the kind of interpersonal relations that allow people to work and live together without constant negotiation of social rules. Such an understanding is required to facilitate the building of personal connections that will enable newcomers to contribute their skills and understandings in a shared Canadian framework. The same philosophy holds great promise for the education of more established Canadians as it encourages the development of cultural skills necessary not only for negotiating a place in the neighborhood, but increasingly in the global marketplace (Botkin, Elmandjra, & Malitza, 1979).

Literacy Skills for the Knowledge Society (Statistics Canada, 1997), which reports additional results from IALS, points farther in this direction. It articulates the need for community-based strategies that connect elements of Canadian society to address literacy needs in ways that are global and that respond to the changing needs and goals of citizens. Although IALS does not address the issue of cultural diversity directly, it does hold promise for examining literacy outcomes as socially situated.

The Canadian Language Benchmarks: Some Background

In 1996 the Government of Canada released the *Canadian Language Benchmarks*, a major advance in description of levels of proficiency among ESL learners in Canada.

> CLB is a task-based descriptive scale of language proficiency in English as a second language, expressed in terms of communicative competence as 12 benchmarks (reference points). The CLB describes learners' placement on a language continuum from Benchmark 1 to Benchmark 12 for three skill areas. It reflects the increasing levels of communicative demand placed on an adult newcomer to Canada, primarily through the selective focus of her/his settlement and integration needs. (Citizenship and Immigration Canada, 1996, p. 1)

Use of CLB permits the implementation of a set of standardized ESL levels on a national basis, developing a national view of language that is systematic and directed. Now a student who is rated at CLB Level 3 in Ontario can move to Alberta and resume his or her studies at a similar level. The need for each school or program to maintain its own rating scale is disappearing. The CLB sets the stage for establishing coherence in levels and outcomes of ESL programs across the country.

One of the strongest features of the CLB is that it provides a potential basis by which ESL practitioners may communicate with each other effectively about learners' proficiency and about language-related aspects of adult education. Of even greater significance, however, is the document's possible use by the ESL community for articulating newcomers' abilities, skills and learning needs to other adult educators, to employers, and to Canadians in general. What the CLB does not currently do, however, is relate outcomes of ESL learning to parallels applied more generally in the population, that is, to measures like adult literacy. This observation is based on the premise that learning ESL should lead to increased opportunity for social and economic integration of immigrants and to increased literacy skills (Statistics Canada, 1996).

Most adult immigrants to Canada hope to improve their English so that they can communicate with their neighbors, co-workers, and friends. They wish to become informed voters, consumers, and citizens. When opportunities to integrate through education are restricted, newcomers may learn instead to adapt to their isolation. An adult ESL learner, Bahman (Ho, 1993) puts it this way:

> I know about all the world on just only TV. Sometimes my friend she came and she tell me "this happened in your country." I feel not happy. I'm very quiet now, you know. Inside my body is very sad because I don't.... I can't say anything and I can't talk. Most of the time I feel like learning English is like being in jail.

Bahman draws a picture of the alienation she experiences in Canada. She has become, of necessity, a voyeur: she cannot access the print media in English. She feels powerless because of her loss and, even worse, cannot even express her frustration with her situation. Who would listen? The opportunity to learn English is not helping Bahman to articulate her experience or to connect with others. Instead, the English words she learns seem like bricks separating her from her own past and from the world she once knew. Perhaps Bahman's experience is not that uncommon among immigrant learners whose opportunities for education are restricted to ESL.

Examining Literacy in ESL Contexts

ESL educators and learners often experience isolation from the broader educational community. Language prerequisites are a common barrier that ESL learners must pass before they are permitted to enter the adult education credit system. For ESL educators to reinterpret their work using the Canadian Language Benchmarks and now to see it as a part of that broader system requires a major conceptual shift. The isolation that has contributed to the segregation of ESL learners has had an equally devastating impact on ESL teachers' views of their work. Views of the role of language in education are substantially different among ESL teachers than among teachers who work with literacy in adult basic education. Jones (1992), in an article that reports results of the Survey of Literacy Skills Used in Daily Activities, suggests that this disparity is largely "due to an inadequate conception of literacy, and of reading, in the second-language community. The great majority of research in second-language learning has focused on post-secondary students in academic programs, not on immigrants in Canadian programs" (p. 203). Bell and Burnaby (1984) amplify Jones' contention, suggesting that "although a considerable amount of material has been published on the ways in which students learn to read and write, the bulk of research has been based on children learning their native language" (p. 2). Literacy education has not been a major topic in the preparation of teachers and researchers working in the ESL field.

Working from a mainstream definition of functional literacy, Bell and Burnaby (1984) describe most ESL literacy learners as people who coped with literacy difficulties in their home countries. They identify four types of ESL literacy learners that teachers may encounter.

1. Students who are illiterate: those with a maximum of two or three years' schooling in the native language.
2. Students who are semiliterate: those who have had up to eight years of formal education.
3. Functionally nonliterate students: those who have basic literacy skills in their own language that allow them to fulfill very simple tasks in English, but who are unable to fill out forms, follow instructions, or read for pleasure.
4. Non-Roman alphabetic students: those whose native language is not written in the Roman alphabet.

This scheme, although useful in describing the needs of literacy learners with limited education, does not address the broad spectrum of literacy experiences represented among ESL learners. Although those with limited education or using non-Roman alphabets do have specific needs for literacy education in English, so do those with good basic or even high levels of education in their home countries. The process of adaptation to citizenship, employment, and social participation in a new country demands skills similar to those experienced by the growing numbers of Canadians now involved in training and retraining to increase their future employability. Literacy becomes a key factor in the negotiation of new opportunities. But by what definition is learning that is associated with economic, political, and social adaptation considered an aspect of literacy development? In fact, if social integration is an intended goal of Canada's Immigration and Settlement programs, definitions of literacy ap-

plying to the general population need also to be considered as they concern learning outcomes among immigrants.

The *Canadian Language Benchmarks* document could provide a basis for making that connection if it were contextualized vis-à-vis similar indicators describing proficiencies and capacities of mainstream Canadians. CLB could provide a framework for dialogue between ESL and mainstream educators that responds to the programming challenges in adult education created by the presence of substantial numbers of immigrants in Canada. However, the conceptualization of literacy among second-language speakers, as currently presented in the Canadian Language Benchmarks is too narrow.

> ESL literacy is a program for individuals who are learning English as a Second Language and who are not functionally literate in their own language for a variety of reasons. (Citizenship and Immigration, Canada, 1996, p. 113)

The Benchmarks definition focuses only on learners' second language skills and their development and does not connect language proficiency to other important factors in literacy development such as intercultural adaptation, developing a sense of belonging in Canada, increasing personal expression and social participation. This is the crux of my argument: if Adult ESL educators do not engage with their work as situated in adult education and, more broadly, in the factories, the institutions, and bingo halls of everyday experience, the programs that they develop and implement, in spite of claims to the contrary, can only serve to impose limits on the possibilities for participation by a growing segment of society.

This argument is supported by an understanding that adult literacy in Canada should be distinguished by an articulated philosophy that encourages the social cohesion of a culturally and linguistically diverse population. Such an understanding will foster the formation of personal connections that enable newcomers to make a real contribution.

Literacy, Economy, and Social Cohesion

In recent years economists have begun to write and speak about the connections between adult literacy and the development of the economy and society. Many experts are voicing their views regarding the role of adult literacy in shaping Canada's future (D'Cruz & Rugman, 1992; Economic Council of Canada, 1992; Government of Alberta, 1993; Statistics Canada, 1996). These same theorists are among the most influential voices heard in the clamor to change the types of activity now taking place under the rubric of adult education. While economists and sociologists speculate about the need to develop skills that will translate into economic advantage, they may be overlooking one of the key functions of education in any society, that of facilitating cooperation among citizens by teaching skills and values that support social relationship building and social cohesion.

The Economic Council of Canada report *A Lot to Learn* (1992) introduces the concept of social cohesion as a key factor separating the Canadian education system from those of more competitive countries, notably Germany and Japan. The main idea is that Canada should increase social cohesion as a way to increase its productivity. The implication of the report is that Canadians do not currently treat education as a vehicle for enhancing a sense of belonging to the

community, and that our education system does not give sufficiently direct signals about rewards attached to education. Perhaps the problem of social cohesion through education should be considered as it relates to the characteristics of the three communities being compared: Germany, Japan, and Canada.

A major difference between Canada and both Germany and Japan important to the project of furthering social cohesion is the degree and treatment of cultural diversity among citizens. Japan is ethnically a rather homogenous state where most citizens share thousands of years of history and values. Germany, on the other hand, is more culturally diverse than Japan, but has developed a way to deal with its minorities that is different from either Japan's or Canada's. Germany encourages the immigration of large numbers of "guest workers," admitting migrants from a variety of countries with the express purpose of fulfilling labor requirements, but with no intent ever to grant German citizenship (Skutnabb-Kangas, 1981).

The project of encouraging social cohesion in a community committed to a philosophy of cultural diversity is truly revolutionary. Canadians are experimenting with a philosophy of nation-building that is unparalleled in the world. The articulated vision of a diverse society, however, may just be lip service to a noble goal if Canadian society does not develop and exercise strategies by which movement toward that goal may be realized. This same point is echoed by social critic Ralston Saul (1997) who observes that,

> If their [immigrants'] role is in some way troubling, then it is entirely our fault for not assuming our full responsibilities to smooth the difficult path of immigration. And the primary institutional responsibility is public education. You cannot have high levels of immigrants and expect them to find their way if you are not willing to spend well above the per-capita norm of western countries on education. (p. 440)

At a time when financial support for education as a whole is being reduced by various governments, Ralston Saul argues for increased funding for immigrant education as a means of ensuring integration. This recommendation assumes that making available more of the kind of programming that is currently available for immigrants could result in qualitatively different outcomes. It is my contention, however, that without informed decision-making and well-developed strategies for public education that support social and economic integration, few meaningful changes will be made. In the end it may be the economists and business people in their push for globalization and economic rationalization of social systems who will force the hand of adult educators by situating unchallenged educational issues in the pragmatics of economy and society.

IALS: Toward an Inclusive Definition of Literacy

It is with the publication of the findings of the *International Adult Literacy Survey* (Statistics Canada, 1995, 1996) that full representation of adult immigrant literacy is made relative to the literacy levels of other Canadians. Five discrete literacy levels are described, with Level 1 the lowest and Level 5 the highest. The definition of literacy articulated by the international study (Statistics Canada, 1996) is an inclusive one, describing

> the ability to understand and employ printed information in daily activities, at home, at work and in the community—to achieve one's goals, and to develop one's knowledge and potential. (p. 13)

The IALS definition is articulated in terms of the lived experience and aspirations of individuals. It connects the development of skills with factors resident in each person: goals, knowledge and potential. In the case of immigrants, goals for social integration and participation take on increased importance as they form the curriculum for literacy development.

With regard to proficiency ratings reported by the *International Adult Literacy Survey* (Statistics Canada, 1995), the results for adult Canadians, born in Canada or immigrant, are summarized in Table 1 as a percentage of total population. Table 1 reveals that the largest proportion of Canadian born adults have a proficiency rated at Level 3, with lower proportions of individuals represented both above and below that level. Immigrants, on the other hand, demonstrate a bipolar distribution, with higher proportions of foreign born individuals concentrated both at the highest and lowest ends of the proficiency scale than at Levels 2 and 3. Although useful for the purpose of group comparisons, this kind of picture is not helpful in trying to portray how the literacy experience of immigrants relates to those of other Canadians.

When first reading this chart I was reminded of a conversation I had with a demographer a number of years ago about documenting educational needs among adult immigrants. I was told that I should not worry about literacy and educational needs among immigrants because they tended to be better educated on the whole than Canadians. The demographer, of course, was presenting a particular kind of picture of immigrants. The perspective on societal participation of immigrants presented by demographers tends to focus on economic indicators, such as labor force participation, business starts, income levels, and need for social assistance (Samuel & Conyers, 1986; Thomas, 1990), or on immigration as it relates to Canadian fertility patterns (Hersak & Francolini, 1987; Taylor, 1987). Educational need for participation is seldom examined. Immigrants are not portrayed as people with lives, with experiences, or with goals shared with other members of society. They are objectified and reduced to economic units. They are no longer your friends, your neighbors, or your in-laws.

The results of the IALS (Statistics Canada, 1995) reveal a different picture of immigrants than that described by the demographer. Although they support assertions of the immigrants' overall proficiency by identifying 28.3% of foreign-born individuals as achieving Level 4 or 5, as compared with only

Table 1
Literacy Levels Among Canadians—Those Born in Canada and Immigrants

	Level 1	*Level 2*	*Level 3*	*Level 4/5*
Born in Canada	14.8	25.6	35.4	24.2
Immigrant	31.1	21.3	19.3	28.3

(Statistics Canada, 1995, p. 71).

24.2% of Canadian-born, they reveal a large number of immigrants (52.4%) with literacy skills rated only at Level 1 or 2. The IALS picture, although still flat, allows room for interpreting why the literacy profile of immigrants is so different from that of Canadian born people. Educators should be asking about how the experience of large numbers of immigrants at both ends of the spectrum differs and how education might address differences in the total group. What kinds of education might help immigrants achieve their own goals and develop their knowledge and potential?

Given the dimensions of the IALS definition of literacy (Statistics Canada, 1995), not only to "understand and employ printed information," but to do so in a variety of meaningful contexts "to achieve one's goals and to develop one's knowledge and potential," any understanding of literacy that speaks to the needs of immigrants must address more than English skills as an indicator of proficiency. Engagement with the experience of literacy in a novel context—resituating one's experiences so that commonalities and differences can be recognized and articulated—is perhaps the greatest task that adult immigrants must accomplish. Literacy, especially as it concerns immigrants in the process of resituating themselves in Canada, must incorporate a view of the individual not only as possessing, but also as able to apply language skills in order to achieve personal goals.

The IALS definition of literacy offers significant implications for those working with ESL learners, for it draws attention to the necessary connection between literacy skill development and its practical application (i.e., citizenship and economic participation). Although the Benchmarks' discussion of literacy does address the personal experience of ESL learners, including "war, torture, abuse or isolation" (Citizenship and Immigration Canada, 1996, p. 114), these are presented as factors affecting learners' confidence to learn skills, not as aspects of life to be encountered, possibly even rearticulated, in a new sociocultural-linguistic environment.

Toward a More Inclusive View of Immigrants in Education

Throughout this article I emphasize the transactional nature of literacy development as it pertains to adult immigrants in Canada. It is interactive not only in terms of the relationship between the reader and the text, but also as it increases opportunities for expression in and comprehension of the community of use. Increased literacy permits a whole life: participation in political process, understanding community events, and increased economic opportunities.

The discussion began with an examination of the potential of the recently developed *Canadian Language Benchmarks* (Citizenship and Immigration Canada, 1996) to describe ESL skill levels and to allow for increased communication between ESL educators, mainstream educators, employers, and decision-makers. This allows for tracking of progress and for description of need. Progress, however, implies directionality. Moving toward what? ESL programs have traditionally been segregated from other adult education. The notion of integration suggests that at some point immigrants and Canadians have opportunities to meet and learn about each other. I argue that there is a tremendous amount of work to be done to ensure that all Canadians, not just

immigrants, have the opportunity to develop skills and attitudes conducive to living and working in a culturally diverse community.

A practical strategy for increasing the usefulness of the Benchmark indicators is to relate them to other types of indicators used in mainstream education such as grade levels, TABE scores, and reading levels. Such equivalencies would enable increased communication between educators about ESL learner needs and reduce perceptions of specialism often associated with adult ESL teaching. What is needed, then, is discussion among educators about how to connect and build on what is known about immigration, education, and social development.

Further, I argue that the Canadian Language Benchmarks need to be conceptualized in a literacy framework, that is, based on a view of proficiency that intends inclusion, participation, and expression. The definition developed for the *International Adult Literacy Survey* (Statistics Canada, 1995) includes notions of skill development for a purpose. Measuring literacy as socially and economically enacted outcomes of skill development would require a major shift from current approaches for evaluation of ESL learning. The goal of ESL education, however, should be to encourage the situation of learners in the broader society and to express proficiency in those terms.

The pressures that face humanity at the end of the 20th century are immense, but the need for imagination is greater. In a democratic society issues such as the environment, technology, and social and political change should be concerns involving all citizens. In a culturally diverse democratic society such as Canada's, the shape of the body politic itself must become curriculum as we struggle for ways to acknowledge the differences among us (Mouffe, 1992). Canada cannot consider itself a progressive nation if Canadians encourage the immigration of large numbers of people without conceptualizing in an inclusive way (we and they together as we) the impact of such change on all our systems, including adult education. To address this goal educators need to engage with immigrant students as participants in Canadian life, not as mere spectators.

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Becoming a Teacher of Writing: Living Between and on the Lines

This article discusses aspects of a larger study in progress concerning the professional development of formative-years (defined as years 2-7 of teaching) secondary schoolteachers of written composition. Although learning to teach well is a complex task in itself, English language arts teachers face additional pressures due to the nature of the discipline as it is currently conceived. Aspects of the project pertain to the teachers' developing abilities to reconcile personal and professional tensions, as well as teachers' responses to the tensions of job insecurity and of reconciling pedagogical beliefs with pressures stemming from the provincial examination system.

Dans cet article, on discute différents aspects d'une plus grande recherche en cours maintenant qui cherche à étudier la composition écrite des enseignants et des enseignantes du niveau secondaire lors de leurs années professionnelles formatives (à partir de la deuxième jusqu'à la septième année d'enseignement). Apprendre à bien enseigner est, en soi, une tâche déjà complexe mais les enseignants et les enseignantes des arts langagiers doivent affronter plus de pression en raison de la nature-même de la matière enseignée telle qu'elle est conçue maintenant. Certains aspects de cette recherche traitent du développement des habiletés d'être capable de réconcilier les tensions personnelles et professionnelles chez les enseignants et les enseignantes, ainsi que leurs réponses associées aux soucis avec la lacune de sécurité dans leur emplois et comment ces pédagogues font la réconciliation avec les pressions qui émergent du système provincial d'examens et de tests de rendements en Alberta.

> How teachers teach writing, or probably anything else for that matter, is a function of who they are, what matters to them, what they bring with them into the classroom, and whom they meet there. How they go about their work can be affected in certain important ways by the conditions in the school, in the community, in the culture at large, but what affects teaching most deeply and dramatically are the themes, the interests, and the deeply felt concerns that affect and give shape to teachers' lives. (Perl & Wilson, 1986, pp. 247-248)

Teaching children to express themselves and to communicate in writing is a complicated and vital task, made more so by the increasingly complex cultural and social milieux of our schools. Although much attention has focused on these changing milieux, we also should attend to the practices of teachers striving to develop the writing competence of diverse students. For teachers in their early years of teaching, this task has added complexities.

Background

In preservice student teaching experiences, neophyte teachers typically focus on themselves as performers in the classroom (Britzman, 1991) and negotiate the complexities of their identities as teachers (Sumara & Luce-Kapler, 1996).

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Research and accounts of the "trial by fire" of first-year teachers makes for often harrowing, occasionally uplifting, reading (Kane, 1991), with first-year success often measured as survival with a willingness to return for a second year.

However, as teachers do move into those second years and beyond, their professional practices begin to look outward and beyond the immediate moment. The early formative years constitute a key developmental stage when teachers typically begin to plan and teach more responsively to individual students and to classes, assert themselves in school cultures (Reynolds, 1992), and often move to different grade levels for new challenges. These developments occur amid sometimes conflicting expectations and responses of students, administrators, parents, the public, and the teachers themselves: such conflicts are a natural consequence of the complicated enterprise of teaching.

However, while they grow in confidence and ability with experience, teachers today are increasingly buffeted by such tensions as an uncertain job market and public and professional demands for accountability and ever-higher scores on external examinations. In addition, for English language arts teachers the nature of their discipline adds particular pressures that compound the difficulties of learning to teach.

Research in Progress: The Formative Years of Becoming a Teacher of Writing

In this article I discuss aspects of a larger study in progress involving secondary schoolteachers who teach written composition. The purpose of the study is to document the developing practices and beliefs of teachers in their early, or formative, years of teaching with a view to understanding the circumstances and considerations involved in their choices for pedagogical practices. These early, formative years are a period I am arbitrarily fixing as the second to seventh years of teaching. The study suggests implications for teacher education, for continuing professional development, and for pedagogy in written composition.

The focus of this article is on aspects of the project that pertain to the teachers' developing abilities to reconcile personal and professional tensions of learning to teach written composition in their immediate contexts of beginning to teach in Alberta during the 1990s. The teachers' perceptions and responses to the tensions of job insecurity, the particular tensions involved with becoming a teacher of English and of written composition, and the reconciliation of their pedagogical beliefs with pressures stemming from the provincial examination system are reported.

Questions. This investigation raises essential issues regarding the theory and practice of contemporary pedagogy in written composition. The research explores how several teachers in their formative years reconcile many tensions:

- How do they construct meaning within their particular contexts?
- How do they construct and interpret their practices?
- How do they develop pedagogical practices that teach for life and for "the test"?
- How do they plan for and accommodate the changing demographics and diverse needs of their students?
- What roles do new technologies play in their teaching of composition?

- What relationships exist between their personal practices in writing and their teaching of writing?
- How do they reconcile conflicts between their beliefs and the "received wisdom" of more experienced teachers?

Participants. Voluntary participants in this research work in varied teaching contexts (urban and rural, junior high/middle school, and senior high levels) and have been teaching between two and seven years. There are five primary ongoing participants, and I have conducted occasional interviews with several other formative-years teachers as well. Quotations are included both from primary and casual participants. Of the primary participants four teach at the high school level (of whom one teaches adults upgrading for high school diplomas), and two teach or have taught at the junior high/middle school level; one of the participants began teaching at the junior high level and moved to senior high after several years. The participants range in age from the late 20s to upper 40s. Although anonymity is not considered necessary or desirable in many circumstances of contemporary research concerning teachers' practices, I am using pseudonyms to report this research.

Data sources. Data sources include periodic semistructured interviews and informal conversations; classroom observations; written documents (teaching handouts, students' writing with teachers' responses, and occasionally, teachers' writing); and correspondence with participants. The semistructured interviews include several preplanned leading questions, with follow-up and branching questions as appropriate; they generally include a discussion of the transcript of an earlier interview for clarification, reflection, and/or extension. The informal conversations have no preplanned structure.

Data analysis. This research is ongoing, and so the discussion that follows is necessarily a developing body of interpretation. Themes emerge from the data, with triangulation possible both in reflective commentary and in observations, and to a lesser extent in analysis of documents. The teachers' comments and practices resonate with each other in interesting ways: similar topics or themes echo in their discussions of their varying circumstances and perspectives, but play out in individual ways as the teachers interpret their contexts.

Hard Times: Contemporary Contexts of Beginning to Teach

> He hasn't handed in his letter of intent yet. I think if at all possible they'll try and bring me back, I think. But ... I'm not too concerned. There's lots of other things I can do. (Jay)

The past decade has not been an easy time to begin teaching, as it has not been an easy time to enter most other careers in North America. The Alberta context during the years in which these teachers have entered the teaching profession has been noteworthy for the lack of hiring in general. Even those teachers who complete a successful first year of teaching may have uncertain prospects for full-time and/or continued employment. Positions that do open for new teachers are often temporary, owing to the district's need to hire for a maternity leave, stress leave, long-term absence, teaching exchange, or other situations where an experienced teacher takes precedence over one with a term contract.

Two of the participants in this study, Jay and Ellen, were initially hired for temporary positions. In his first year Jay's district awarded him its distinction for excellence in first-year teaching; nevertheless, his prospect for a second contract hinged on the prerogative of an experienced teacher to reclaim his position. When the teacher opted to continue his leave of absence, Jay received another contract; as his second year drew to a close, he again awaited the decision of the experienced teacher.

Ellen had already taught in another district in a similar situation, and as the year drew to a close she awaited word about the possibility of a renewed contract in her new district. She and her partner, having had a commuter marriage for a year, struggled to plan their lives around this uncertainty:

> My husband and I just kept changing our entire life's plans on each week's estimation of whether there would be a job for me there. So now I've just decided to live my life and hope I get a job, instead of letting the job dictate my life. I know it's no way to be successful, but hopefully it's a way to be content ... I think before, like in my parents' generation, personal identity was so tied to occupation. Because then, you would have a job for life. Now, if I tie my identity too closely to my job, I am in big trouble, because I would quickly learn "You're disposable." Because even very good talented people are being shuffled around, treated like they're interchangeable, and the employers don't care about the impact on individuals' lives. (Ellen)

Although the instability of jobs has been a common workplace situation in most fields, for teachers this situation is especially difficult, as teachers are still expected in the eyes of the public and many in our professional community to feel an almost missionary calling or vocation. Teacher educators often portray teaching as a calling, as "a way of being" in the world. Britzman (1991, 1994), Clandinin and Connolly (1995), and others have written of the development and negotiation of teacher identities as student teachers assume the mantle of teacher in the classroom and the broader community. Successful teachers seek to integrate the personal and professional, to be oneself in the classroom and to feel authentically present rather like an imposter, acting as teacher. In the words of an inspired preservice teacher, "The teacher needs to *be* what the teacher is teaching" (McClay, 1992). However, Jay and Ellen learned a different lesson in their beginning years: they learned the folly of tying one's self-concept too tightly to their images of self as teacher. Although they both clearly love teaching and have confidence in their growing abilities as teachers, they learned to keep their minds open to other possibilities.

Once hired, the new teachers have joined an older and increasingly demoralized teaching force, as family and societal tensions spill into the classrooms and the staffrooms of our schools and as teachers work with an increasingly diverse student population. Although some district personnel officials indicate that they look for new teachers who are strong enough to be change agents, the burden on relatively inexperienced teachers to act as change agents is heavy, especially in view of the insecurity of some of their jobs.

> When I was a student teacher, I remember veterans telling me to get out while I could, that they were counting down to retirement. Well, here, no one says that to me because I'm new—they know I want to be there. But they're thinking it. They tell me I'll burn out unless I find easier ways of doing things. They try to

> help—they're really nice, but I don't want to do those stupid worksheets. I guess I'll burn out if I sit back like them. (Bethany)

With an increasingly diverse and complex cultural and social mix in our classrooms, educators are becoming more aware of the pedagogical implications of such diversity. Ironically, this awareness comes at a time of heightened emphasis on standardized tests. Although the students may be diverse, the provincial tests can act as levellers in the eyes of the teachers. Carolann, teaching high school-level courses to adults, is impressed by the cultural diversity in her classes—many of her students are ESL learners with varying degrees of comfort in the predominantly English-speaking society in which they live. Nevertheless, as Carolann notes ruefully, "they are all aiming to take the same diploma exam."

Content and Discontent: Autonomy, Responsibility, and Confidence

English language arts as a school subject has been both applauded and condemned as a "contentless" subject, sometimes by the same people in different moods. Enthusiasts relish the developmental nature of the subject, noting its limitless expanse and possibilities: language is the foundation of all our learning and the gateway to our social world. To others it seems a vague, amorphous discipline, lacking in objectivity and not encompassing a body of knowledge to be mastered. Indeed, the duality of these perceptions of English language arts is both virtue and vice:

> As an inherently ambiguous subject, which is less hierarchically organized than is math and encompasses a variety of subdomains, English may offer teachers greater freedom within the confines of the classroom. As it would be difficult, if not impossible, for teachers to cover all of the territory encompassed by the subject of English, teachers may necessarily select the purposes and areas they plan to emphasize in their classrooms. The inherent complexity of the subject, with its separate domains and subcomponents, may also offer teachers greater autonomy in developing curriculum. (Grossman, 1993, p. 7)

This ambiguity gives teachers tremendous freedom to exploit the "curriculum potential," in Ben-Peretz' (1975) phrase, of English language arts. The very ambiguity of the subject is attractive, particularly to proponents of whole language and process orientations, in that it seems to permit teachers to focus more clearly on the children they teach rather than on mastery of a body of knowledge. Teachers working in a developmental program of studies such as the Alberta program for language arts can teach concepts and skills using a wide variety of literature texts and resources appropriate for the interests and needs of students. However, this freedom places great demands on their knowledge of language texts, literature, and language (Grossman & Shulman, 1994) and leads, perhaps inevitably, to a sense of the impossibility of covering all domains.

In such a teaching context the teacher's understanding of a conceptual framework for teaching language arts and his or her perception of what is important for particular students' growth are critically important. With freedom and autonomy comes a tremendous responsibility. Of course, teachers are bound by restrictions in selection and use of curricular materials in all teaching contexts. In addition to provincial lists of approved resources, prag-

matic concerns such as school traditions, community expectations, and the inevitable "we have 30 copies of this novel in the book room" also shape curriculum choices. Although those pragmatics sometimes take on a life of their own in regulating teachers' choices, the fact remains that English language arts teachers face the exhilaration or bewilderment, depending on one's perspective, of freedom in relation to the provincial program of studies. Given such freedom, teachers may—and some do—see the presence of an external provincial examination as a useful standardizer, a benchmark to keep the teachers and the students on track.

Given such freedom and such responsibility, confidence matters. Although new teachers typically develop confidence with teaching experience, the development of such confidence is especially complex for teachers of English language arts. Their developing confidence in their teaching practices may be affected by their sense of proportion and propriety in language arts learning. The teachers in this study report their own growth in confidence, growth that is both cause and indication of their willingness to experiment with their structures, routines, and resources. They tend to note with pride that they do things differently with each class, not because of problems with the original plan, but out of a desire to stay fresh, to avoid burnout. The areas of language arts that they focus on vary according to their sensibilities and strengths. Each teacher seems almost to have a key word or phrase that repeats in conversation. Ellen, for example, encourages publication of her students' writing; the words *reflective* and *creative* crop up in Gwen's discussions of excellent student writing; and Jay speaks often of writing as intellectual engagement.

Gwen's development of confidence, however, is a tale of confidence supported, lost, and regained as she changed levels after three years of teaching. Beginning to teach at the junior high level, she engaged in the workshop approaches to reading and writing that she believed were most beneficial for students. She felt supported and affirmed in these approaches, with district inservices that provided useful strategies, and she considered several experienced colleagues as valuable role models. When she moved to the high school level, however, she suffered a crisis of confidence before ultimately regaining her equilibrium:

> When I first went into the high school, I felt a pressure to do mostly the essay writing, and I kind of followed along what other people were doing and there were comments to me like, "Are you even doing any essay writing?" So I felt really pressured. I guess in that respect it changed from junior high to high school.

> When I first started [in high school] I did very little creative writing and I think that really bothered me. I was very depressed and at that point really didn't know why. And I think this year, too, teaching English 30 for the first time I sort of followed what this one person was doing step-by-step, and then we would meet every week and "this is what we're going to do next." It was really stressful for me because it wasn't my style of teaching. And this person didn't use journals and didn't use a lot of the stuff, and yet I didn't want to do that on top of it because I thought this is going to stress the kids out because there's all this other stuff that she's doing and I didn't want to. I was sort of caught.

> I've shifted away from that now [with another group of 30s] and I'm doing my own thing, like with the poetry. It's a better situation now. There's ... much more reflective writing, more creative writing, even the essays—I try to do different things with how we approach the writing of the essay. More pre-writing and pre-reading activities, too ... I sort of came into my own way of doing things and being less worried about what other people are thinking. (Gwen)

This crisis of confidence seems caused by the pressures felt by experienced and less experienced teachers alike concerning the diploma exams. It clearly left Gwen more susceptible to teach according to the received wisdom of her colleague rather than to act on her beliefs. As discussed below, the specter of the provincial examinations drives the practices of the high school level teachers in this study in various and interesting ways.

Learning to Teach, Learning to Teach Writing

The contemporary orthodoxy for English language arts teachers rests on expanded and expansive conceptions of the uses of writing for learning. From the foundational work of theorists, researchers, and teacher-researchers such as Britton, Burgess, Martin, McLeod, and Rosen (1975), Murray (1985), Graves (1985), Atwell (1987), Romano (1987), Calkins (1994), and many others, leadership in the teaching community has developed visions of the teacher-as-writer and of process approaches in the attempt to teach writing "from the inside out," in Kirby, Liner, and Vinz', phrase (1988). Such conceptions of writing tend to stress personal development and exploration; development of individual voice in writing; and variety of forms, functions, and audiences (Halliday, 1970) to a greater degree than did earlier, more product-focused approaches to writing instruction. Students and teachers are encouraged to think of themselves as writers—to "live between the lines" (Calkins, 1991)—and to create a celebratory community of writers by sharing and supporting writing.

Such process orientations to the teaching of writing are obviously tremendously unpredictable in many ways: they foster exploration of emotions and revelation of the personal lives of students and teachers in ways that are not always comfortable even for experienced teachers. At the least, teachers who choose to engage in such process orientations must create safe and trusting environments if they hope to foster development of authentic student voices in written composition and to offer their own writing in membership in a class community of writers. Such an environment calls for tremendous coping qualities in teachers—their personalities are "on the line" at all times, both in terms of their sharing of authentic writing and of their responsibilities for the well-being of students in their classroom care.

As Courtland (1990) points out, in process approaches to written composition the teacher is the primary resource. When teachers share their own writing with students, these texts become artifacts that authenticate the teachers as authorities (in best sense of word) in their own eyes as well as in the eyes of students. In using their own writings, teachers make resources for present and future use with students. The acts and artifacts of writing contribute to their abilities to engage students in genuine writing. Nevertheless, this dual status as teacher and text poses particular dilemmas for formative-years teachers. In

these first years, teachers' personalities and identities are on the line on a minute-by-minute basis as they establish their authority and expertise as teachers. At a time when they are necessarily engaged in continual negotiation of identities as beginning teachers (Sumara & Luce-Kapler, 1996), teachers who foster communities of writers can be caught in a catch 22 of increased personal vulnerability. Needless to say, although this *author-ity* in the classroom can be a dramatic and fundamental strength, teachers need a certain courage to make the attempt.

Finding Time to Read and Write

One of the ironies of life as an English language arts teacher is that we are likely to be drawn to teach this subject because we love to read and/or write, but once hired we struggle to find time to engage in such literate behavior. All the participants in this study report a love of reading literature and writing; our conversations repeatedly show an "etiquette of reach" (Newkirk & McLure, 1996) as we stray into animated discussions of favorite literature. All also engage in some form or forms of *recreational* writing, a term I use for writing in any form that is done for the satisfaction of the writer, regardless of his or her intention to seek avenues of publication. They all struggle to find time to read and write for personal pleasure, with varying degrees of expectation and frustration. Four of the five identify themselves strongly with their writing; Carolann notes that she writes a form of personal journal "to keep me sane." Ellen and Jay, in particular, express great frustration that the activities that drew them to teach English language arts rather than another subject suffer from the demands of their teaching. Ellen, after a lengthy period of insecurity about her job, found solace that a lack of teaching contract would enable her to focus on her writing for a time at least:

> To tell the truth, I'm not sorry to have the time to rest a little, after a hard year last year.... It's the perfect chance to start a novel. I'm not exactly sure what my novel will be about. But I think ... the first is probably the hardest. Even if it turns out to be crap that no one would want to read, at least I would know that I am capable of the work. And I could try again. (Ellen)

The very qualities that contribute to their capabilities as teachers are those that suffer most from teaching. For formative-years teachers, such tension is another impediment to their integration of personal and professional, one more complication in the complex negotiation of identities. Indeed, Jay questioned whether to continue teaching even if offered a contract:

> I write poetry. Not as much since I started this job. I do a little bit of fiction writing at home. The odd story. That's one of the things that I find, there's sometimes where I really question if this is what I want to do with my life because there are times I just love it and there are times when I'm very frustrated by the lack of time I have to do things like read. I don't read very much except for what's for them [classes]. I try and keep a book with me all the time but the chance to get down to it is just—and I don't suppose that will change in other years. (Jay)

Writing With and for Students

Although the teachers in this study write for personal satisfaction, they do not all share this writing with students or use it for teaching purposes. The two

teachers with the most experience—Denise (7 years) and Gwen (6 years)—have followed different paths in addressing this tension of finding or making time to write for personal satisfaction. Denise reports that her responses on student papers, which she considers her personal writing because of her investment in thought and sensitivity, comprise most of the writing she manages during the school year. She speaks of her dissatisfaction that she has "fallen away" from doing more journal writing herself and with her students as she did in her first years of teaching.

As the participants characterize themselves and their own habits, it appears that it is Gwen who writes and uses her own writing the most in her teaching. She seems more comfortable than the others with the tension of finding enough time to write and using the writing to learn about the teaching of writing. In her modeling of her own writing processes, she attempts quite consciously to teach writing "from the inside out" (Kirby et al., 1988):

> I try to show them how my poems have developed from one stage to the next. Especially because I think they need to know how some people develop their poems. Some people can just write it out, but quite often I have paragraphs or a journal entry and then I take that idea and shape it into a poem. I get them to try that and circle strong images or words.

Carolann, who maintains a journal faithfully with early morning writing, also writes with her classes, emphasizing her desire to encourage students by joining in with them:

> If I'm telling them that they have to write poems, then I am going to share a poem with them that I've written, on the topic that I'm giving them.... I think it makes a big difference. Because then I'm part of it too. I'm not just the instructor up here telling them what to do, I'm participating.

She finds that her development as a writer guides her teaching in her attempts to promote students' abilities to break through their fear of making errors. As Shaughnessy (1977) found, errors and expectations often go hand in hand, and Carolann's consistent focus in teaching writing is to help bolster her students' confidence:

> That's one thing I tell my students—just sit down and go. You can always go back.... And I used to be like that too with—not a one-draft person, but I really wanted it to be good the first time. So I took a lot of care on that first draft. And now I'm a lot more, I don't go crazy, but I'm just a lot more reckless, I guess, with my writing the first time. And I encourage that in my students. It doesn't have to be, it's not going to be what you hand in the first time you do it. And I guess that's something I bring through doing more of my own writing. (Carolann)

Jay, with less teaching experience (2 years), distinguishes between his academic writing from university days, which he shares with his students for models of essays, and his poetry, which he does not reveal to students. However, he has crossed the line anonymously. One of his classroom routines is to write a short poem, verse, or quotation in a particular space on the blackboard each day. Students can choose to write journal responses to this quotation or may opt for their own topics. Jay has on occasion written lines from his own poetry for these quotations, but he does so anonymously, with interesting results:

> But I have slipped in a few of mine, a couple of times. There was one group of girls that I had in my 20 class. They sat right by there and they gave me the hardest time through the whole term. And they would always look and see what's up there [in the quotation space of the blackboard]. And they were actually writing down one of the poems I had up there. But I didn't tell them.... I just thought, if I put my name up there it would distort everything because they wouldn't be able to separate it from me. They wouldn't be able to be objective about it.

Writing Processes and Products in Provincial Examinations

For the four teachers at the high school level, discussions of their teaching practices and beliefs regarding written composition rest on their perceptions of the Alberta Education diploma examinations that their students write in grade 12. The three years of high school English language arts build for them to a culmination of essay writing for these diploma exams.

Alberta Education's English 30 and English 33 Examinations

The provincial examinations in English language arts currently include a multiple-choice reading section and a writing component. They are consistent with the two program streams for high school English language arts: English 30 is considered the more academic stream and English 33 is the general stream. The provincial exam scores count as 50% of the student's grade for the English 30 or 33 course, with the classroom teacher's grade comprising the other 50% of the final grade. A growing trend in recent years has been the publication of provincial examination results, not only for the diploma exams, but for the grades 3, 6, and 9 exams as well. Needless to say, particularly in rural communities, such publication of results in local newspapers, in school promotional materials, and in real estate marketing creates public judgments of schools and of individual teachers. In the eyes of many teachers, such publication of results, with the concomitant and seemingly inevitable pressure for increased results the following year, does not take into account the complexities of schooling or achievement, and does not reflect accurately on either their teaching practices or students' achievement.

The English 30 writing exam has two writing tasks: a minor (suggested 30 minutes writing time) and major (suggested 90 to 120 minutes writing time). The minor writing assignment is a reader's response to literature, and the major is a literature composition assignment. Each writing task is an essay prompted by a selection of literature. The two essays are linked by a common theme of the literature, with the more open-ended minor writing expected to serve as a springboard to the more literature-based major assignment. The English 33 exam includes three writing tasks: a personal response to literature (suggested 75 minutes writing time), a functional writing task (suggested 45 minutes writing time), and a written response to visual communication (suggested 30 minutes writing time).

Living with the Examinations

The pervasiveness of the teachers' focus on the diploma exams has reminded me at times of the anecdote of the woman who informed Buckminster Fuller that the world rests upon the back of a large turtle. When he asked what the turtle rests on, she replied, "An even bigger turtle." "And what does that turtle

rest upon?" "It's no use, Mr. Fuller," she announced, "It's turtles all the way down!" In teaching high school English language arts courses, the danger is the potential for seeing diploma exams "all the way down."

External examinations, a source of heightened tension for many teachers in a contemporary context of increased public scrutiny and expectations for ever-increasing scores, are especially problematic for English language arts teachers, whose subject area provides for such flexibility and autonomy. Appropriately, given the developmental nature of the Alberta program of studies, the exams attempt to test students' abilities to meet new tasks in reading and writing rather than to work with a preset body of knowledge: a particular work of literature is not the content to be learned and it is not tested on the exam. Students are expected to respond to unfamiliar passages of literature and writing prompts. In writing, students are expected to organize thoughts appropriately, marshall details to support their main points, use conventions of written English appropriately for their grade levels, and express themselves sensibly and coherently. These are reasonable expectations of achievement for which Denise, like many of her colleagues, considers the marking standards to be high:

> And unfortunately, and I hate to say it, but there is a Diploma 30 exam at the end ... [that] asks them to do superior essay writing. I've marked diploma exams and I can't believe how high the expectations are. And I think sometimes we forget these are 17-year-old kids. (Denise)

The Alberta examinations call for time-limited written products on a narrow range of writing tasks. Although the exam is not intended to test the full breadth of the program of studies, the increasing prevalence of and emphasis on standardized assessment in written composition can narrow the teaching focus to the tested forms. Clearly it is a difficult task to develop a time-limited exam that respects writing processes as we encourage teachers to teach children. Attempts are being made to make standardized external examinations in English language arts more consistent with our understanding of writing processes. Such efforts include the use of two genres of writing tasks, on the understanding that the quality of writing varies with the writer's interest in and experience of form; the inclusion of time for prewriting talk in small groups; and encouragement of webbing and other planning strategies. However, the examination remains an artificial exercise and source of stress for many teachers.

> And then there was a meeting at which we were told that we were expected to raise the kids' diploma scores by 5% a year. When I was at that meeting I was quite shocked, but then later when I thought about it, I thought, well, perhaps this is why I've felt so down this year, too, is the pressure that's being put on us. (Gwen)

The pressures of accountability and increased test scores can impede teachers' professional growth. Callahan (1997), writing about state assessment in Kentucky, indicated that the stress of increased teacher accountability and pressure for higher test scores effectively thwarted another goal of the assessment process—encouraging teachers to reinvigorate their practices by talking

about their teaching methods. The teachers in Callahan's study focused exclusively on accountability without consideration of their teaching methods.

Gwen, Carolann, Denise, and Jay feel the pressure to help students perform well on the diploma exams, a pressure that resonates in their teaching. Gwen's crisis of confidence came at her move to the high school level, when she felt that the practices and beliefs with which she had had success and support at the junior high level were somehow not valued in senior high. This insecurity led her to accept, temporarily, practices to which she did not subscribe. After a period of dissatisfaction with her teaching, her confidence rebounded and she found role models among experienced high school teachers whose practices accorded better with her beliefs:

> If you're going to teach to the exam, you're not going to build a well-rounded student who thinks independently and who can respond in various ways, you know. I think the written part probably is a good exam; I like the exam, but I think too many people gear their whole year to the essay writing. There's lots of factors, lots of things you could do for them to be successful on that exam that don't necessarily have to be exam writing practice for the whole year. And I just realized that this year, half way through the year. (Gwen)

In conversations with Carolann and Denise there is an almost palpable sense of writing as a terrifying activity for students as a consequence of the essays of the diploma exam. This fear may be shared by teachers as they take on the burden of preparing students for the exams. Although teachers at the grades 3, 6, and 9 levels also feel increased pressure and public scrutiny, the grade 12 teachers are the last chance: if a student fails, the failure has immediate repercussions for the student—and perhaps for the teacher. Despite the limited range of the program of studies tested in the diploma examinations (e.g., the speaking and listening strands are omitted), teachers are aware when their marks for a student are significantly out of line with the student's exam score:

> I did feel badly, though, because two kids on their Diplomas scored significantly higher than I was giving them on their written assignments, and again, I question whether or not I was marking too difficult, or maybe that topic just clicked with them. There are so many variables. I really don't know what happened there. I think it was a difference of 20%. That's a lot. (Gwen)

Carolann and Denise teach in quite different contexts: Carolann teaches adults, many of whom have failed or dropped out of high school in the past, or who speak and write English as a second language. Denise teaches at an urban high school considered to be highly academic. Yet both speak movingly of the fears of their students:

> They're afraid ... because you have to write an essay on your diploma exam. And if you can't write an essay you'll fail the diploma exam and then your life is over and you can't graduate high school—you know, it's hammered into them. And they fear it.... My very best student in 20 last year—she wrote well, she was so articulate and insightful and creative, and she didn't write the exam. She just didn't show up that day. And she could have aced it. She just didn't have the confidence. (Carolann)

> I go right back to the beginning of essay writing and I do it in almost a cookbook kind of fashion because they're very uncomfortable with the idea of the word *essay*. They become frightened of it. (Denise)

For both of these teachers, a primary goal with their classes is to allay fears and build students' confidence about writing the exam. Both teachers explicitly discuss breaking writing down into "small steps" and "manageable bits," focusing first on sentence structures and working up to paragraphs and finally to essays. Both begin with English 10s and 13s to work toward the ultimate goal of writing the English 30 or 33 exam. Both teachers identify the biggest changes in their teaching practices as their efforts to be more specific, to provide students with step-by-step procedures for essay writing. With English 20s, Carolann begins with personal writing and gradually works toward essays, first leading students from personal essays to essays about literature.

> So I really backed up and I've really gone back to the basics and started slow and just small stuff, like baby steps forward. Baby steps, whereas before I used to take these giant leaps. I think that was just finding my own fit too. And coming to understand the students and what they needed. (Carolann)

Jay and Gwen both speak extensively about student engagement with the thinking involved in their writing; Jay focuses on the intellectual engagement, and Gwen often discusses the creative, reflective engagement of students with writing. These two teachers attach considerable weight to a variety of forms of writing, and they consider that students learn to write essays well by writing in other forms as well.

> And I try and convince them that writing is a way of learning about these things. And it is important, the more you understand other people, the more you understand yourself. (Jay)

> And then I have them quite often ... write down what have been the four or five major changes that you've made, and why you made them, and what the result was. And I find that a very reflective piece too, they really have to think about it. And it also shows me the difference between that peer editing sheet where their partner has written down all these comments and what they've actually chosen to take away from that. Some people, it's interesting. I tell them they have to provide reasons for why they didn't choose that suggestion and not just say, "Well, you know, it wasn't any good." Well, why wasn't it any good, or why did you not [take the idea]? ... So that way they have this freedom to do that, but they have to think about why they're doing what they're doing in terms of the process. (Gwen)

Conclusion: Being and Becoming

As these teachers continue to gain experience and teach more of the courses of the secondary language arts program in Alberta, they will undoubtedly continue to explore new ways of working with their students. Although this study has a small number of participants, their developing practices and beliefs, while responsive to their individual contexts, nevertheless suggest implications for professional development for practicing teachers, for teacher education, and for students and their written compositions.

The tension of finding balance in personal and professional lives, particularly with regard to finding time to read and write is virtually unresolvable, as are

most questions of finding time or making time. However, it should first be noted that, orthodoxy notwithstanding, not all English language arts teachers are avid readers or writers. Some use their summer times to catch up and accept as inevitable that the demands of teaching during the school year preclude this pleasure. Others, however, would be unhappy living with this deferred indulgence, as reading and writing are integral aspects of their daily lives. For those who take seriously the dictum that teachers of writing ought to be writers themselves (Murray, 1985), the irony is that to the extent that they subscribe to this dictum, they may increase the tension of juggling time to teach and time to write.

Some of this tension may be resolved in the interweaving of the writing and teaching. Gwen, using her own writing fairly extensively as a teaching resource, seems more comfortable with the difficulties of making time to write. Gwen has the advantage of more years of teaching experience than Jay, who uses his academic writing pedagogically but uses his poetry surreptitiously in his teaching. In this anonymous inclusion of his poetry he cannot exploit its value as a teaching resource to model process and decision-making in writing. It will be interesting to see how Jay works in this tension in the coming years.

In light of the increasing public pressure on teachers to help students score higher on external examinations, we will need to examine closely the practices they employ to this end. In teacher education and continuing professional development, we will need to demythologize the external examinations both for teachers and for the public so that students, teachers, and the public can better understand their potential uses and limitations. When teachers like Carolann and Denise, who teach in widely different circumstances with regard to student population, both speak movingly of their students' fears of the provincial examination, we must realize that those fears do not originate solely with these students. There is a danger of responding to these fears, among students and educators, by unintentionally defining writing more narrowly than is intended in the program of studies or indeed in any sensible estimation of the demands our students will face in written composition in their future work and domestic lives. As Callahan (1997) argues, explorations and improvement of pedagogical practices are casualties of overemphasis on increased scores on external testing.

By focusing attention on the developing practices of teachers in their formative years, teacher educators and district personnel interested in teachers' professional growth can attend to the tensions, ambiguities, and possible contradictions of current theories and practices in education. These formative-years teachers of written composition live constantly between the lines of personal and professional tensions, between their perceptions of how they were taught to teach and how they find themselves teaching, between the lines of conflicting expectations. As teachers of writing who are writers themselves, they also attempt to live in the lines of their own and their students' writing.

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Everyday Scientific Literacy: Do Students Use Information About the Social Context and Methods of Research to Evaluate News Briefs About Science?

Skill in evaluating media reports about science is an important aspect of scientific literacy for citizens in the 21st century. To identify the kinds of information individuals used to evaluate media reports about science, university students were asked to judge the credibility of specially constructed news briefs and to justify their judgments. Credibility ratings were influenced by the area of research, the plausibility of the conclusions, and information about the quality of research methods. Information related to the social context of the research had no effect, despite its importance for evaluating conclusions reported in news briefs. Students used a variety of criteria for justifying their judgments, including the information provided in the reports, prior knowledge, and prior belief. Implications for defining and assessing scientific literacy are discussed.

L'habileté d'évaluer les rapports des médias sur la science constitue un aspect important de la littérature scientifique pour les citoyens et les citoyennes du 21e siècle. Afin d'identifier le genre de renseignements dont font usage les individus dans l'évaluation de la couverture par les médias de la science, on a demandé à des étudiants et des étudiantes de l'université de juger la crédibilité d'un bulletin de nouvelles spécialement confectionné et de justifier leur jugement. Les indices de crédibilité furent influencés par le domaine de la recherche, la plausibilité des conclusions, et les renseignements relatifs à la qualité des méthodes de la recherche. L'information ayant rapport au contexte social de la recherche n'a eu aucun effet malgré son importance dans l'évaluation des conclusions rapportées dans les bulletins de nouvelles. Les étudiants et les étudiantes ont fait usage d'une variété de critères pour justifier leurs jugements, incluant l'information provenant des rapports, des connaissances et des croyances antérieures. On discute les implications pour définir et évaluer la littérature scientifique.

Science educators and researchers generally agree that the goal of contemporary science education is to produce scientifically literate citizens. An evaluation of scientific findings can influence personal, professional, and public

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policy decisions. Citizens in a democratic culture need to be able to contribute to policy debates about such topics as storage of toxic waste, energy conservation, acid rain, or greenhouse gases. Furthermore, when formal education is completed, a major source of new scientific information available to citizens is likely to be the media—print, radio, and television (Elliott & Rosenberg, 1987; Mallow, 1991; Norris & Phillips, 1994; Tannenbaum, 1963; Wellington, 1991). Even those citizens who pursue careers in science or technology cannot follow the primary literature for all areas of scientific research (Bauer, 1992; Shamos, 1995). Therefore, we can assume that both scientists and nonscientists often first hear about *new* scientific research from the popular media. As a result, skill in evaluating media reports can be considered part of the collection of skills necessary to be a scientifically literate citizen (Korpan, Bisanz, Bisanz, & Henderson, 1997; Miller, 1983; Prewitt, 1983; Science Council of Canada, 1984).

The goals of this research were twofold. The first was to develop a new method for studying whether individuals use various types of information when evaluating the credibility of brief media reports about scientific research. The second goal was to determine whether the inclusion of two types of information in news briefs affects judgments of credibility. Specifically, we were interested in the effects of information about scientific culture and practice.

Definitions and Methods of Assessment

Although there are several definitions of scientific literacy, most have three elements in common: (a) an understanding of basic scientific facts, concepts, and processes; (b) an understanding of the methods and procedures of scientific investigation; and (c) an understanding of and appreciation for the connections among science, technology, and society (Aikenhead, 1989; Baker & Piburn, 1991; Champagne & Newell, 1992; DeBoar, 1991; Fleming, 1988; Glynn & Muth, 1994; Hawkins & Pea, 1987; Jenkins, 1990; Miller, 1983; Mitman, Mergendoller, Marchman, & Packer, 1987; Ryan & Aikenhead, 1992; Yager & Tamir, 1993). Despite the breadth of this definition, the most common means of assessing literacy in science has relied on factual recall. More specifically, most measures of scientific literacy rely on recall of scientific concepts such as DNA, cells, atoms, radiation, and gravity (Miller, 1983).

Shamos (1995) argued that assessing factual knowledge is both simple and straightforward, but that a collection of facts is not the essence of science. Facts, whether they be about science, history, mathematics, or literature, are soon forgotten if they are not used. Shamos advocates strongly that scientific literacy needs to be redefined: "The science education community keeps insisting that the public conform to the *traditional* meaning of scientific literacy, that is, to knowing some 'textbook' science instead of sharply redefining such literacy to conform with the true public need" (p. 231). Testing specific course content may not be the best way of assessing scientific literacy, especially among adults in the work force (Campbell, 1997; Shamos, 1995). For these adults a major source of new information about science is the popular media. Thus developing skill in reading and critically evaluating reports of research meets a public need. This skill requires all three elements of the previous definition and is

therefore a valuable capstone index of scientific literacy (Norris & Phillips, 1994).

Reading Media Reports About Science

Mallow (1991) analyzed the content and structure of various types of science writing, including popular reports, specialized science publications, and textbooks. Textbook writers typically cover fundamental scientific facts and processes, serving as a guide for learning basic concepts that need to be mastered as part of an educational objective. In contrast, newspaper reporters who cover science are responsible for communicating recent scientific findings as well as findings that relate to and inform public policy. Typically, the subject matter of media reports is cutting-edge or *frontier* science, not the uncontroversial and established knowledge that is the subject of textbooks (Bauer, 1992). Media reports are often brief and necessarily incomplete. Because of space limitations, only selected features of the research can be provided (e.g., the name of the investigators, the name of the journal where the research was published, the number of participants, Zimmerman, Bisanz, Bisanz, Klein, & Klein, 1998). Critical evaluation may or may not be necessary for dealing with the information in science textbooks, but it is crucial when dealing with the new scientific findings that affect decisions about personal or policy matters. Little research has been conducted on how people read reports of science in the media despite the importance of this skill.

Norris and Phillips (1994) argued that authors of popular reports present science in a way that should be interpretable by nonscientists, but that it may not be a type of text with which students are familiar. Norris and Phillips found that grade 12 students had difficulty interpreting the pragmatic meaning of popular reports about science. Students tended to be more certain of the scientific status of the reported findings than of the author of the article. They also had a tendency to confuse statements about evidence and statements that were drawn on the basis of evidence. In short, grade 12 students with solid backgrounds in science had not yet mastered the fundamental skills necessary to interpret popular reports of scientific research. Because actual reports from the media were used, these were materials that could not be controlled with respect to length, content, reading level, or number of idea units or propositions. The lack of controlled text does not allow inferences about the type of information (present or absent) in the reports that contributed to students' "faulty" interpretations.

Another approach, focused on media reports as a vehicle for investigating how people think critically about scientific research, is the request or *question-generation method* (Bisanz, Bisanz, Korpan, & Henderson, 1994; Korpan et al., 1997; Korpan, Bisanz, & Bisanz, 1994). One of the skills necessary for the evaluation of scientific research is the ability to ask relevant questions in order to assess the credibility of a research conclusion. In these studies students in university and in grades 7, 9, and 11 were shown concise, media-style news briefs that included a conclusion based on fictitious research. Participants were asked to request information that they would need in order to ascertain the credibility of the conclusion.

These researchers (Korpan et al., 1997; Bisanz et al., 1994) were interested in the *features* of scientific research that people consider important for evaluating the conclusions of a research report. Korpan et al. (1994) developed an extensive taxonomy to classify both the *topic* of the questions and the *knowledge domain* of the justifications. The categories in the taxonomy are hierarchical, with categories going from general to specific. The nine broad categories for the topic codes section are shown in Table 1. Within each of these categories information becomes more specific. For example, within the Method category is the topic Subjects, and within Subjects is the topic Number of Subjects Tested. This taxonomy is intended to represent a superset of all potential features of research that could be generated by individuals and that might be important for the evaluation of a research conclusion.

Two main findings from the question-generation studies are of interest. First, most types of questions that were generated varied as a function of age (Bisanz, Bisanz, Korpan, & Henderson, 1995) and university major (English versus psychology, Korpan et al., 1994). Questions about causal explanations, however, were frequent and fairly stable for participants at all education levels. Requests for information about methods and data increased as a function of grade (7, 9, and 11, Bisanz et al., 1995) and year in university (first and fourth year, Korpan et al., 1994). Compared with questions about methodology, questions about *social context* such as the training and qualifications of the researchers or where the research was published were asked less frequently and consistently for both secondary and university students. However, fourth-year undergraduate majors were somewhat more sensitive to the communal nature of science. Specifically, they asked more questions about social context than first-year undergraduates (Korpan et al., 1994).

A second finding was that certain dimensions of the news briefs influenced the questions participants generated. The *plausibility* of the research conclusion was found to have an effect on the type and number of questions generated. Reports that had less plausible conclusions prompted questions about the theory or underlying mechanism, whereas more plausible reports provoked questions about method. *Typicality*, or the relation of the reported phenomenon

Table 1
Topic Code Categories from the Korpan et al. (1994) Taxonomy

Topic Code	*Includes information about:*
Social Context	Credentials, motivation of researchers and people associated with the research, publication outlets, or funding sources.
Agent/Theory	Agent or treatment involved in the research (information about how it works).
Method	Information about how the research was conducted including design, subjects, procedures, and replicability.
Data/Statistics	The data collected, comparative nature of data and analyses.
Related Research	Reference to other reported findings.
Relevance	Importance, applicability, or generalizability of the research finding or the impact of the research.
Other	Relevant but not covered above.

to the sciences typically taught in school (e.g., physics, chemistry, biology), also influenced requests for information. Reports about more typical phenomena elicited more questions about the cause (Agent/Theory), whereas less typical stories prompted students to ask questions about measures. The combination of typicality and plausibility also affected the type of questions asked by subjects. For example, reports that were low in both typicality and plausibility prompted students to request information about the researchers' credentials.

In summary, different topics related to plausibility and typicality elicited different types of questions from students. Age and training also had an effect on the type of questions that were asked. Use of the generation method has been successful in ascertaining the types of features of scientific research that subjects know about and generate spontaneously.

Report-Evaluation Method

Individual performance on the question-generation task may not adequately reflect all one knows about the various aspects of conducting scientific research. This task requires that participants spontaneously generate or *recall* features of research. Our research is an attempt to determine whether subjects *recognize* features of research as being useful for evaluating the credibility of research reports. The idea that recognition is less demanding than recall is generally accepted in cognitive psychology (Bahrick, Bahrick, & Willinger, 1975; Shepard, 1967). The task developed and used in our study is loosely based on the logic of the functional measurement approach (Anderson & Cuneo, 1978; Surber, 1984, 1987). In this approach, tasks are constructed that require the individual to consider multiple sources of information in order to make different types of judgments. In this research several types of information were included in brief, media-style reports. In particular, details about *quality of social context* and *quality of methods* were incorporated into the reports to determine whether these types of information are used when students make judgments about credibility. News briefs also varied systematically with respect to typicality and plausibility. Finally, individuals were asked to provide written justifications for their judgments. In this task written justifications can provide information about whether various types of prior knowledge, dimensions, and features of the text, or both, influenced judgments.

Social context and scientific methods. Mallow's (1991) analysis of popular press articles revealed that authors often omit information about methods and procedures in favor of information about who conducted the study and the practical applications of the research. Media reports commonly contain details about the social context of research such as the researcher's credentials, the source of funding, the publication outlet, or the institute or university affiliated with the research (Einsiedel, 1992; Zimmerman et al., 1998). These features could affect judgments about the quality or validity of the research. These features are also among those that researchers use to judge the quality of their colleagues' work (Shadish, 1989).

Norris (1995, 1997) provided an additional rationale for examining how people evaluate the social context features of reported research. He suggested that the communal nature of science has profound implications for understanding science. Within the community, scientists themselves rely on the

expertise of other scientists in their field for aspects of their knowledge. As well, he asserted that "Nonscientists' belief or disbelief in scientific propositions is not based on direct evidence for or against those propositions but, rather, on reasons for believing or disbelieving the scientists who assert them" (Norris, 1995, p. 214). Because of this interdependence scientists and nonscientists alike must be able to make judgments about aspects of the researcher such as qualifications, honesty, and conflict of interest (Hardwig, 1991; Siegel, 1988).

Although social context cues may influence judgments of quality or credibility, information about the appropriateness of the scientific methods employed is probably the most critical determinant of the credibility of a research conclusion. Although popular press articles contain minimal methodological information (Mallow, 1991), it is important to determine whether students are sensitive to this type of information when it is present and use it when making critical evaluations. A commitment to "the scientific method" is one of the defining features of conducting scientific research. Knowledge about the various processes and methods of science is also a hallmark of a scientifically literate person. In addition, learning the methods of science is a core component in most science curricula. Gray and Mill (1990) found, however, that graduate students needed several cues before noticing that crucial information about control groups was missing when reading abstracts of research. Their research was limited to one methodological feature (i.e., the presence/absence of control groups). Further research is needed to determine whether students have adequate knowledge of the variety of methods used in scientific inquiry and if they can respond to cues about the quality of scientific methods.

Typicality and plausibility. Typicality and plausibility influenced the number and type of questions generated by students (Korpan et al., 1997). Because these dimensions had a systematic effect on evaluation, they are important to consider in designing any subsequent research about reading in science. There are two further reasons for including these factors in the present work. First, a variety of scientific topics are reported in the media. In addition to research related to the natural and physical science studied in school, research related to medicine, health, and the social sciences is also commonly covered in the print media (Einsiedel, 1992; Wellington, 1991; Zimmerman et al., 1998). Thus it becomes important to know how the typicality of topics covered in news briefs affects credibility judgments. Second, plausibility is of interest because numerous examples of scientific phenomena may seem implausible or counterintuitive if we simply appeal to common sense (Wolpert, 1993). For example, hyperactive children are often treated with amphetamines (Swanson, McBurnett, Christian, & Wigal, 1995). Students may have learned through their science education that science is not always a straightforward or intuitive endeavor.

Our study was designed to assess university students' knowledge about particular aspects of the scientific enterprise using the report-evaluation method. Brief reports were selected because they are pervasive. News briefs represented 60% and 74% of samples of science writing in the popular press in studies by Einsiedel (1992) and Zimmerman et al. (1998) respectively. The quality of information in brief reports was manipulated in order to determine which types of information students recognize and use when critically evaluat-

ing conclusions based on research findings. We were interested in determining the answers to several questions. First, typicality and plausibility were text dimensions that influenced the type of questions students generated about brief reports (Korpan et al., 1997), but do they influence credibility judgments? Second, do students recognize and use the quality of information provided about social context and method when producing credibility judgments and justifications? Third, to what extent do students' justifications for credibility judgments rely on various types of information provided in the news briefs, prior knowledge, or both?

Method

Participants

One hundred, twenty-eight university students in an introductory psychology course participated for course credit. The median age was 19.4 years (range 17.8-48.5).

Materials

Sixteen news briefs were constructed that varied in plausibility, typicality, quality of social context information, and quality of methodological information. Examples are provided in Appendix A. Plausibility refers to whether the reported conclusion is consistent with personal knowledge (Posner, Strike, Hewson, & Gertzog, 1982). Typicality refers to the relation of the reported phenomenon to sciences typically taught in school (e.g., physics, chemistry, and biology). Four topics were selected that varied in plausibility and typicality as rated by university students (Korpan et al., 1994): pesticides (high plausibility, high typicality); meditation (high plausibility, low typicality); gasoline additive (low plausibility, high typicality); and dream crystal (low plausibility, low typicality).

The selection of features related to social context and methodology was based on a survey of news briefs and on several magazine articles about how consumers should read media reports (e.g., "Headlines on the Hot Seat," 1996; "Scientific Studies," 1995; Zimmerman et al., 1998). Information about social context included details about the researcher, the location of the research, the publication outlet, and the source of funding. Information about methodology included details about duration, control group, number of subjects, and the extent to which subjects are representative of the population in question. News briefs were written so that details about each of these variables were indicative of high- or low-quality research (see Table 2). For example, the number of subjects in a study (e.g., birds in a study about the effects of a pesticide) could be reported as small or large. In most cases a larger number of subjects enables a higher degree of confidence in generalizations made on the basis of data and thus is a probable characteristic of high-quality research. For each topic and informational variable the indicators of high- and low-quality research were obtained by interviewing experts in related domains (e.g., chemical engineers for the news brief about gasoline additives).

Design and Procedure

Because of the demands of the task, each student read and evaluated only four of the 16 news briefs. To provide students with the full range of topics,

Table 2
Low and High Quality Information about Social Context and Method

Generic Feature	*Quality of Information*	
	Low	*High*
Researcher	a scientist	a well-known research team
Location	private research facility	major university
Funding Source	provincial grant	federal research council grant
Publication Outlet	conference presentation	reputable research journal
Control Group	no control group	control group information
Number	small # of "subjects"	large # of "subjects"
Duration	short duration of study	longer duration of study
Representativeness	low representative sample	highly representative sample

typicality and plausibility varied within subjects, and social context and method varied between subjects. For example, a given student would read and evaluate four news briefs representing all four combinations of plausibility and typicality (corresponding to each of the four topics; see Appendix A) but representing only one of the four combinations of social context and method (e.g., all four news briefs could have high-quality social context information and high-quality methodological information). Sets of four stories were constructed so that social context information, methodological information, and order of topics were counterbalanced across subjects. Students were tested in groups of 5 to 20. Each subject was given a test booklet and instructed to read each news brief. After each brief, subjects were presented with the written question "How would you rate the [first] research report in terms of the credibility of the underlined conclusion?" and a 7-point scale (1 = not very credible, 7 = highly credible). They were then asked to provide a brief written justification for the credibility rating (i.e., "Please write a few sentences to justify the rating that you gave the research report"). Students were allowed to

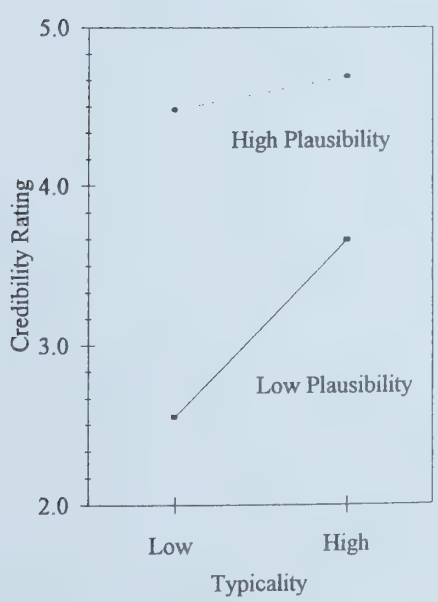

Figure 1. Mean credibility ratings as a function of typicality and plausibility.

work at their own pace and generally took 20 to 40 minutes to complete the task.

Results and Discussion

Credibility Ratings

A 2 (Sex) x 2 (Social Context: high vs. low) x 2 (Method: high vs. low) x 2 (Typicality: high vs. low) x 2 (Plausibility: high vs. low) ANOVA with repeated measures on the last two variables was used to analyze credibility ratings. The mean credibility rating was greater for high-typicality news briefs (4.17) than for low-typicality news briefs (3.52), $F(1,120) = 30.99$, $MS_e = 1.76$, $p<.001$, and greater for high-plausibility news briefs (4.59) than for low-plausibility news briefs (3.1), $F(1,120) = 129.63$, $MS_e = 2.16$, $p<.001$. Moreover, these two variables interacted, $F(1,120) = 16.51$, $MS_e = 1.56$, $p<.001$. As can be seen in Figure 1, the effect of typicality was larger for low-plausibility news briefs (3.66 vs. 2.55, $p<.01$) than for high-plausibility news briefs (4.69 vs. 4.48, $p>.05$).

Thus counterintuitive findings were found to be more credible if they occurred in the context of the natural and physical sciences typically taught in school. This interaction was expected based on previous work with similar stimuli and the question-generation task (Korpan et al., 1997). Because of instruction in domains like chemistry, individuals may recall other instances of counterintuitive results. For example, the elements sodium and chlorine are highly toxic, and yet they combine to form table salt. An individual who is aware that science is often at odds with "common sense" might believe that a poisonous chemical could be added to gasoline to reduce pollutants (the low-plausibility, high-typicality news brief). A competing and perhaps additional factor in the case of the dream crystal news brief (low plausibility, low typicality) is that some students may have viewed the subject matter as being outside the bounds of scientific investigation altogether.

The analysis revealed no effect of social context and only a marginal effect of method ($p<.10$). However, method and typicality interacted, $F(1,120) = 14.19$, $MS_e = 1.76$, $p<.001$ (see Figure 2). When the quality of the methodological information was low, the mean credibility rating for low-typicality news briefs did not differ from the high-typicality news briefs. With high-quality methods, however, mean credibility ratings were greater for high-typicality news briefs

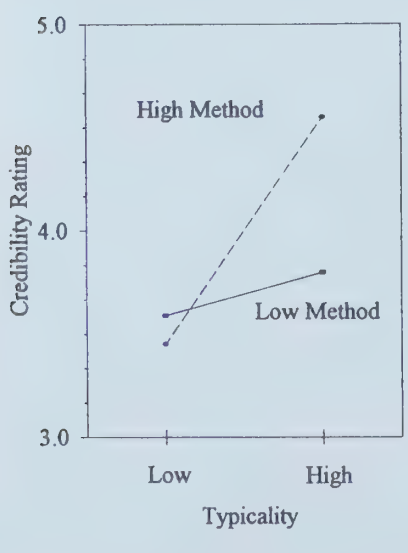

Figure 2. Mean credibility ratings as a function of typicality and method.

than for low-typicality news briefs, $p<.05$. Perhaps students were more familiar with the methods typically used in the natural and physical sciences represented in the science curriculum than the methods relevant to the low-typicality news briefs. They may have noticed the methodological information in the low-typicality news briefs, but because of a relative lack of instruction, their knowledge may have been insufficient to evaluate whether the information was of high or low quality. The tenability of this hypothesis is addressed in our discussion of the justification data.[1]

Written Justifications

The justifications that students provided were coded with the Korpan et al. (1994) taxonomy for classifying knowledge about scientific research (see Table 1). On average there were 1.85 justifications per rating (range: 1-6). Justifications were assigned both a taxonomy code for content and a valence code (i.e., whether the comment was positive or negative). We provide a general picture of the valence and types of justifications, and then focus on aspects of these data that facilitate interpretation of credibility judgments. We focus on justifications referring to social context and method because the quality of these types of information was manipulated in the news briefs. Finally, we describe a somewhat unexpected finding, namely, the surprising number of students providing justifications that appealed to prior beliefs.

Valence and type of justifications. Students tended to make negative evaluative comments in their justifications. For the four news brief topics (dream crystal, meditation, gasoline additive, pesticide) the percentage of negative codes was 91%, 67%, 69%, and 64% respectively. Samples of both positive and negative comments appear in Appendix B.

Table 3 shows the percentage of students who used each type of justification. The second column lists the percentage of students whose justifications were coded as a particular taxonomic code for any of the four news briefs. This information presumably reflects the degree to which a feature is available to students. The third column lists the percentage of students who referred to a

Table 3
Percentage of Students with Justifications Coded as Various Topics for Any or All of the News Briefs

Topic	*Any*[a]	*All*[b]
Social Context	37.5	3.1
Method	86.7	33.6
Agent/Theory	47.7	0
Data/Statistics	18.8	2.3
Related Research	7.1	0.8
Relevance	7.8	0
Believe/Do Not Believe	53.1	3.1

[a] Percentage of students with at least one justification coded as a particular topic for any of the four news briefs.
[b] Percentage of students with at least one justification coded as a particular topic for all four of the news briefs.

particular topic for all four news briefs. This information presumably reflects how salient a feature is across content areas. As is evident in Table 3 methodological information was by far the most available and the most salient topic for justifications. Many types of information were available to students, but not used consistently. For example, almost half the students referred to the particular agent that was under investigation for at least one of the news briefs, but no one used this type of justification for all four news briefs. Some students commented on related research, showing knowledge that a single study contributes to a body of existing findings. Although not appropriate for judgments of credibility, some also considered the relevance of the research, indicating sensitivity to the practical application of research findings.

Social context justifications. Recall that the quality of social context information did not affect students' credibility judgments. An initial explanation might be that university students were not aware that such information could be used in the assessment of the news briefs. However, over a third of the students mentioned social context information as part justification for at least one of their credibility ratings (see examples in Appendix B). Remarks such as these provide evidence that students do not completely disregard the information provided about social context. Compared with methodological information, however, information about social context is less available and less salient. This difference may account for the lack of an effect on credibility ratings, at least under conditions where other sources of information such as typicality, plausibility, and quality of methods are present in news briefs.

Method justifications. Recall that in the analysis of credibility ratings, method interacted with typicality (see Figure 2). Based on the credibility judgments, it appears that students recognize and use the information about quality of methods only in the case of topics that are typical of the sciences covered in the high school curriculum. One possible explanation for this finding is that students may not be aware of what constitutes good or appropriate methods in the less typical sciences. However, the justification data do not support this explanation. In the case of less typical topics, students had a tendency to comment on methodological information that was inadequate or even missing from both high- and low-quality versions of the news briefs. For example, 29% of students mentioned potential subject bias in either of the low-typicality news briefs (e.g., "This conclusion does not take into consideration expectancy bias" and "Seniors could expect to feel better and therefore do"). Negative evaluative comments about measures used with human subjects were made by 26% of the students for either of the low-typicality news briefs (e.g., "Sense of well-being was not even defined" and "How do you really measure or know what someone is dreaming?"). Only 5% of the students mentioned both subject bias and measures. Thus half the students noticed at least one potential methodological flaw in either of the low-typicality news briefs.

In contrast, students restricted their comments to features reported in the high-typicality news briefs without mentioning other methodological features they may have known. Furthermore, their credibility ratings mirrored the high- and low-quality versions provided by the experts (recall that the specific methodological details were provided by university researchers working in areas similar to those in the news briefs). In general students were less skeptical and

more reliant on the given information in the news brief when it came to evaluating the methodological features and details for the high-typicality news briefs. These differences presumably contributed to the interaction.

Belief justifications. A somewhat surprising finding was the number of justifications that were simple statements about a belief or disbelief in the conclusion of the news brief (see Appendix B). This category does not exist in the Korpan et al. (1994) taxonomy and had to be created to code students' justifications. Over half the students cited belief or disbelief as part of their justification for the credibility rating for at least one of the news briefs (see Table 3). When typicality was high, students rarely found statements about belief to be necessary (see Table 4), perhaps because the more established sciences carry sufficient weight to override biases based on personal beliefs. When typicality was low, however, students were more likely to invoke personal beliefs, and the valence of their beliefs corresponded to the plausibility of the conclusions.

This finding that students often cite personal beliefs in their justifications is noteworthy for two reasons. First, the pattern of responses in the present study (Table 3) is somewhat discrepant from that obtained by Korpan et al. (1997). Frequent reference to prior belief raises the question of whether particular types of information might have been more available or salient had students focused only on information within the news brief or prior knowledge about scientific research. The nature of the question-generation task used by Korpan et al. (1997) does not allow individuals the opportunity to mention prior beliefs, because they are requesting information in order to evaluate the tenability of the research conclusion. Second, the fact that a number of students may have made a credibility judgment based on prior belief emphasizes the importance of studying the conditions under which individuals engage their critical thinking skills when examining the specific content of news briefs. As recognized in the new Pan-Canadian framework of learning outcomes for primary and secondary science education (Council of Ministers of Education, Canada, 1997), at the broadest level scientific literacy is more than knowledge and skills—it also involves attitudes and the disposition to use knowledge and skills in personal decisions and public discourse about science.

General Discussion

We argue that the evaluation of new scientific findings is an important skill for a scientifically literate citizenry. Kyle (1995b) asserted that scientific literacy

Table 4
Percentage of Students with Justifications Coded as Belief Statements by Topic

Topic	*Believe*	*Do Not Believe*
Dream Crystal (Low Typicality, Low Plausibility)	3	30
Meditation (Low Typicality, High Plausibility)	25	3
Gasoline Additive (High Typicality, Low Plausibility)	7	8
Pesticide (High Typicality, High Plausibility)	10	<1

Note. Percentages are based on a sample of 128 students.

"must be meaningful, it must be applicable to students' daily lives, and it must enable students and adults to fully contribute as active agents in a democratic society" (p. 1009). The new scientific findings that have the most potential to influence and inform personal and public policy decisions are often first reported in the popular media. In our study we developed a new method using media reports of scientific research to investigate some of the factors that influence the evaluation of credibility. News briefs varied systematically with respect to text dimensions (plausibility, typicality, quality of social context information and quality of methodological information). Students' credibility judgments were influenced by the plausibility of the conclusion, typicality of the discipline, and quality of research methods.

Students provided justifications that were coded for content. They referred to information in the news briefs, as well as to prior knowledge and beliefs, when justifying credibility judgments. An analysis of the credibility ratings alone would have been insufficient for determining the types of features that students might consider when evaluating the credibility of scientific research. For example, the quality of information about social context had no effect on overall credibility ratings. Over a third of the students, however, used social context information to justify a rating for at least one of four news briefs. The quality of information about methods only affected credibility ratings when the news brief topic was typical of the natural and physical sciences. The justifications provided evidence that students were reacting to methodological features mentioned in the low-typicality news briefs. In addition, the justification data provided evidence that students considered relevant methodological features that were missing from those reports.

In many respects the report-evaluation task (credibility judgments, but especially the justifications) revealed the criteria that university students considered important for evaluating the credibility of new scientific findings. The first step in any type of evaluation is to select and justify criteria for evaluating the item of interest (Scriven, 1980). Shadish (1989) examined the criteria that working scientists used to evaluate their own and colleagues' work. He noted that different conclusions about the quality of scientific work could result depending on the criteria selected for the evaluation. For example, the merit of a scientific study could be judged with respect to *outcome* criteria (i.e., concerning goals, or the impact on society) or *process* criteria (i.e., the characteristics of good scientific practice). That is, there are "multiple plausible ways" to evaluate quality or merit in science (Shadish, 1989, p. 390).

Of the six major categories in the taxonomy (Korpan et al., 1994; see Table 1), two map onto process criteria (Method and Data/Statistics) and one maps onto outcome criteria (Relevance of Research). These categories and subcategories represent criteria for evaluating frontier science before it is integrated into the literature and its impact well determined. First with the question-generation task and now with the report-evaluation task, it has been shown that students use a rich variety of criteria when evaluating new scientific findings. Methodological features were considered most important, but social context factors, theory, relevance, and the existence of related research were also used in the evaluation of credibility. At least some students showed signs of appreciating the multifaceted nature of science as a human activity.

One specific goal of this research was to determine whether the presence of information about the social context of research influenced judgments about credibility. Despite the broad set of criteria that could be useful for evaluating scientific research, we focused on this type of information because of arguments about epistemic dependence (Norris, 1995) and arguments that scientific literacy must be redefined such that it is relevant to the lay public (Shamos, 1995). Norris (1995) advocated strongly that students need to learn how to determine the believability of experts. To do so students need to understand the nature of science as a communal human activity in which knowledge about the social context of research (e.g., the prestige of the investigator and the quality of the journal, as judged by peers in the discipline who influence funding and publication) is critical. Information of this type often is described, at least briefly, in media reports and therefore it is available for evaluation. If scientific literacy is defined to include skills relevant to citizens who are not specialists in science, then sensitivity to information about the social context of science is important. Yet in the question-generation studies it appeared that knowledge about social context was less available and salient than knowledge about either method or theory. The students in our study demonstrated some recognition of social context factors. Even under the cognitively less demanding conditions of this study, however, this type of information was not particularly salient. Given the role that brief reports about science can have in contemporary life and continuing education, and also given the importance of information about social context of science in evaluating these media reports, students' lack of sensitivity to this type of information is of concern.

In contemporary education, literacy often is considered to be synonymous with competence or knowledge. Thus scientific literacy usually is assessed by measuring people's knowledge about scientific facts or methods. This sense of literacy differs from the more traditional meanings of the term, which typically include the ability to read. Unfortunately, reading in science courses often is limited to textbooks. Given the rich sources of information about science that exist in the popular media, the Internet, the writing of scientists, and other nontextbook publications, perhaps the traditional meaning of literacy needs to be taken to heart in contemporary science education. Learning to read, comprehend, and critically evaluate material from the diverse genres of scientific literature, including news briefs about science, would be of considerable benefit for students who are to become scientifically literate citizens.

Implications for Assessment of Scientific Literacy

The report-evaluation task and the generation task are both potentially useful methods for assessing literacy in science for several reasons. First, arguments have been made that literacy in science must be defined and assessed in a way that is related to the lives of students and adults (Bauer, 1992; Kyle, 1995a, 1995b; Shadish, 1995). The evaluation of scientific findings as first reported in the media is a real-world task that has relevance for citizens. An initially favorable evaluation of a media report regarding a personal or policy decision could lead to further reading or consultation with professionals who have appropriate expertise to guide decision-making. Second, this type of assessment does not rely solely on recall of factual and conceptual material. This

characteristic can be considered an asset because such knowledge is not well recalled as individuals move beyond formal schooling and into the work force (Miller, 1983; Shadish, 1995; Strauss, 1995). Thus a measure of scientific literacy that provides an index of how effectively citizens evaluate new information about science, but that is not heavily reliant on the accuracy of one's factual knowledge, could be useful. An interesting byproduct of assessment tasks that deemphasize factual recall is that they can be used to assess and compare scientific literacy across a wide range of age groups and education levels. Third, the question-generation and report-evaluation tasks are quite flexible and can be adapted for use in assessing knowledge about many aspects of the scientific enterprise, including the facts, concepts, and methods emphasized in the school curriculum; the connections among science, technology, and society (e.g., relevance); and the communal nature of scientific activity (e.g., the peer review system, consensual processes, and the process of generating scientific research).

Recently some test builders and curriculum designers have begun to see the potential value of using news reports about scientific research as a means for assessing and teaching aspects of scientific literacy (Michigan Education Assessment Program, 1994; Thier & Nagle, 1996). As our research demonstrates, in exploring use of news reports in these contexts close attention must be paid to the impact of text dimensions and features that affect students' performance (Voss et al., 1982). One advantage of using the evaluation of news briefs in assessments, however, is that tasks can be structured such that different forms of response are possible, including multiple-choice items, question generation, justifications, and short answers. Open-ended questions are more labor-intensive to score, but they allow educators to examine different types of knowledge than would be possible with methods based on recognition or cued recall. The single most important advantage of using open-ended test items is that they may be closest to the real-world task faced by citizens. Thus they would probably be a valid indicator of scientific literacy.

Final Remarks

Factual recall of scientific facts is a necessary but not sufficient demonstration of literacy in science. Students must also be taught about "the scientific culture": the communal nature of science, the tentative nature of new scientific findings, the continually self-correcting mechanisms of science, and the consensual processes that are critical for evaluating scientific knowledge. If we are interested in developing lifelong learning skills, we must emphasize that the media are a potential source of continuing science education. If contemporary science education is to be relevant and influential outside the classroom, then science educators must emphasize the skills necessary for reading, interpreting, and questioning new scientific findings. In our view the critical evaluation of frontier science helps students and adults to realize that science is more than a collection of procedures, facts, and formulas. Miller (1983) argued that "scientific literacy refers to the ability of the individual to read about, comprehend, and express an opinion on scientific matters" (p. 30). The call for more meaningful and relevant definitions and assessment of scientific literacy can be

answered by focusing on skill in the critical evaluation of cutting-edge science as first reported in the media.

Note

1. Although a main effect of sex was not found, a number of unexpected interactions occurred. Sex interacted with plausibility, $F(1,120) = 5.35$, $MS_e = 2.16$, $p<.05$, and typicality, $F(1,120) = 5.60$, $MS_e = 1.76$, $p<.05$, and with both these variables in a second-order interaction, $F(1,120) = 5.61$, $MS_e = 1.56$, $p<.05$. The only difference between males and females was for the high-typicality, low-plausibility (gasoline additive) news brief. The mean credibility rating was 4.09 for males and 3.21 for females ($p<.01$). There were significant differences in the number of science courses taken by males and females at the university level, $t(126) = 3.40$, $p<.001$, and for the total number of courses taken at university, $t(126) = 3.34$, $p<.001$. These differences cannot be accounted for in terms of differences in age or number of years out of high school. Males had taken more physics courses, $t(125) = 2.89$, $p<.01$, and chemistry courses, $t(125) = 2.25$, $p<.05$, at the high school level. If the differences between males and females were a result of the difference in science education, then the effects of sex would not be significant in a analysis of covariance (ANCOVA) with total number of science courses as the covariate. Interactions were still significant ($p<.05$), however, indicating that the difference in the number of science courses could not account for the interactions involving sex. Thus the source of this difference between males and females for the gasoline additive news brief is not related to differences in science education and remains unexplained.

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Appendix A
Sample of Test Materials

Title: Pesticides Harm Bird Populations (High Typicality, High Plausibility)
Version 1: Low Social Context, Low Method.
People are concerned that declines in wildlife populations will result in extinction for some species. A scientist from a private research facility has reported that birds that have been exposed to the insecticide Permaldrin are less likely to mate than usual. The project was funded by a provincial grant and the findings of the project were outlined at a conference. The study, which was conducted over two breeding seasons, involved the observation and examination of the mating behaviour of robins in a region where Permaldrin was known to be used. A group of 20 breeding pairs of robins was monitored during the period of study. The researcher has concluded that *using this insecticide is an important factor in causing a decrease in mating behaviour and subsequent birth rates for birds.*

Title: Meditation Helps Seniors (Low Typicality, High Plausibility)
Version 2: Low Social Context, High Method.
People in western countries have long been fascinated by traditional Eastern religious practices. A scientist from a private research facility has reported that senior citizens who enrolled in a Mai Handu meditation course showed an increased sense of well-being. The findings of the study were reported at a conference and a provincial grant funded the research project. The senior citizens' sense of well-being was measured after a six-month course in Mai Handu meditation and compared with that of seniors who had not yet taken the course. Two hundred seniors living in their own homes or in senior citizen lodges participated. The researcher has concluded that *practicing this meditation can be an important way to increase a sense of well-being in seniors.*

Title: New Gasoline Additive (High Typicality, Low Plausibility)
Version 3: High Social Context, Low Method.
People are concerned about the environmental effects of automobile emissions. A well-known research team from a major university has reported that vehicles burning gasoline containing the poisonous chemical Quipmanol reduce existing levels of air pollution. A reputable research journal published the findings of the project, which was funded with a federal research council grant. The reported results were based on a study in which a fleet of 10 cars from a major

automobile manufacturer was tested for harmful emissions. Each car was driven for a total of 40,000 km while burning a gasoline that had been enriched with Quipmanol. The researchers have concluded that *fueling vehicles with gasoline containing this poisonous chemical will be important for decreasing current levels of air pollution.*

Title: Dream Crystals (Low Typicality, Low Plausibility)
Version 4: High Social Context, High Method.
People have long been interested in what the future holds. A well-known research team from a major university reported that people wearing ollinite crystals during sleep are more likely to have dreams that predict the future. Funding was provided by a federal research council grant. The findings were published in a reputable research journal. The dream journal and daytime journal entries of sleepers who wore the ollinite crystal during sleep were examined and compared with the journals of sleepers who did not wear the crystal. A sample of 64 randomly selected participants kept these journals for a full year. The researchers have concluded that *wearing this type of crystal is important for increasing the frequency of dreams about future events.*

Appendix B
Examples of Students' Justifications

In the examples given below (+) denotes justifications with a positive valence and (-) denotes negative valence. New brief topics and text dimensions are: D=dream crystal (low plausibility, low typicality); M=meditation (high plausibility, low typicality); G=gasoline (low plausibility, high typicality); P=pesticide (high plausibility, high typicality). Features of the news briefs are: sc=social context, m=method, with l=low quality and h=high quality.

Social Context Justifications
(-) "funded by provincial government = *suspect results*" (M,lsc,lm,)
(-) "I felt uncertain because of a 'private research facility'—perhaps some credentials would be appropriate" (P,lsc,lm)
(-) "... the fact that the government squandered tax money on such ludicrous research" (D,hsc,hm)
(-) "The fact that the researcher has been given a provincial grant causes me to question the findings. The researcher may have given false findings so as to get more grant money" (M,lsc,hm)
(+) "provincial grants and being shown at a conference show credibility" (P,lsc,lm)
(+) "the reputation of the researchers and the objective funding is good for credibility" (D,P,hsc,lm)

Method Justifications
(-) "Further tests are required to rule out all other possibilities that may lead to the same result" (P,lsc,lm)
(-) "The researchers failed to use a control in this study" (M,hsc,lm)
(+) "The fact that the study had a control group to compare the test group with adds to the credibility of the report" (P,lsc,hm)
(-) "The main problem is sample size" (D,hsc,lm)

(-) "The claim is based on a small number of cars driven a relatively short distance" (G,lsc,hm)
(-) "All subjects are university students, a broader mix should be chosen" (D,lsc,lm)
(-) "Only one species of bird was studied; the conclusion is not valid for other groups of birds" (P,lsc,lm)
(+) "As everything can be measured quantitatively, it is more reliable" (G,hsc,hm)

Belief Justifications
(-) "My personal judgment says this is false" (D,hsc,hm)
(-) "I don't believe that a poisonous chemical would decrease air pollution" (G,lsc,lm)
(-) "It's just hard to believe" (D,lsc,lm)
(-) "I do not believe in this type of behaviour, no matter what one did to prove it to me" (D,hsc,lm)
(+) "This is intuitive. Meditation does increase well-being" (M,hsc,lm)
(+) "I believe pesticides do harm birds" (P,lsc,lm)
(+) "I believe this one because I believe that meditating is healthy" (M,lsc,lm)
(+) "Although I have never heard of Permaldrin, I believe pesticides could change mating patterns" (P,hsc,lm)

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Curriculum Decisions About Literature in Contemporary Classrooms: A Preliminary Analysis of a Survey of Materials Used in Edmonton Grade 10 English Courses

A survey of the materials used in grade 10 English classes in Edmonton in 1996 produced returns from 21 out of 22 schools in the public and Catholic systems. Teachers produced 1,698 citations of titles, covering materials in different print genres, film and video, and a few titles in other media. A small number of titles predominated in the lists, particularly Romeo and Juliet *and* To Kill a Mockingbird. *The most popular titles in a range of genres, as cited by the teachers, are included in this article, which constitutes a preliminary analysis of the data.*

En 1996, 21 sur 22 écoles des systèmes publique et catholique de la ville d'Edmonton ont répondu à un sondage des différents genres de matériel didactique utilisés dans l'enseignement de l'anglais en 10e année. Les enseignants et les enseignantes ont cité 1.698 titres provenant de différents genres de publications imprimées, de films, de vidéocassettes et quelques autres titres provenant de d'autres médias. On a remarqué que certains titres étaient communs à toutes les listes, en particulier Romeo and Juliet *et* To Kill a Mockingbird. *Cet article regroupe les titres les plus populaires qu'ont identifié les enseignants et les enseignantes à partir d'une gamme de différents genres de documents et il en présente une analyse préliminaire des données.*

Questions about literate behaviors often founder on a lack of specific information about what today's young people are reading. Even basic information about the kinds of materials actually being taught in school is hard to find. Student achievement is monitored in a variety of ways, but a specific awareness of experiences and materials to which students are exposed in their classrooms is a subject about which we know much less. Yet most theories of the teaching of reading would support the idea that *what* students read is important, both in terms of the kinds of reading strategies they acquire and also, and even more importantly, in terms of how their attitude to reading is affected. We know that today's classrooms are different from those of a generation ago: more multiethnic, more inclusive, more challenged by the social and economic problems of a wide band of students. Theories of literacy teaching have also changed radical-

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ly over the past generation. In the face of these changes, information about actual teaching practices is valuable, both in grounding theoretical advances and in supporting realistic curriculum review. Data about contemporary teaching practices can also serve as a baseline for subsequent larger studies of student reading choices and/or school practices.

The project described in this article was developed to establish and document texts being used in the grade 10 English classes in Edmonton, Alberta. The study involved a survey of all high schools in the public and Catholic Edmonton school systems conducted in the spring of 1996. All teachers of a grade 10 course (English 10, 13, 16, pre-IB, AP, etc.) were invited to report on the materials they used.

The Alberta English curriculum in place at the time of this survey supports a broad approach to the development of specified outcomes. Teachers have access to an authorized novels list and a list of approved resources, but provisions exist for them to make use of their own independent choices in class as well.

We chose to explore grade 10 courses because these teachers have greater flexibility in choosing class materials than they do in later years of high school. In grade 11 there is a high mandated element of Canadian content, and in grade 12 the pressure of the provincial examinations is ever-present. Grade 10 also represents a turning point for many students, a time when some take the plunge into reading more adult materials and some diminish their reading time or give up on reading altogether. According to Cone (1994), many students at this level are at particular risk of being stalled in their reading development because they fail to find books that address their own experiences. We hope eventually to conduct a broader survey of students' personal reading interests and plan to make comparisons between what they choose to read privately and what they encounter in school; to do such work with grade 10 students offers the opportunity to explore a time when real and important choices about lifelong literacy are being made by these young people.

Rationale for the Study

There is a paucity of contemporary Canadian data about the materials used in language arts classrooms. However, some other issues are easier to pin down. It is clear that the demographics of these classrooms are not what they used to be. The figures of the 1996 census reflect shifts in the makeup of the population of Edmonton. Currently the top five sources of new immigrants to Edmonton are the Philippines, China, Hong Kong, India, and Viet Nam, a major shift from the days when most new citizens arrived from Europe (Thorne, 1997).

There is little information about how classes are changing to meet these new challenges. Cameron's (1989) study produced some information on Alberta teachers' attitudes to and use of Canadian material in their classrooms, but those data are not up-to-date and do not reflect the most recent changes in the demographics of contemporary urban classrooms. Tomkins' (1986) commentary on Canadian curriculum issues does not deal with current circumstances, and Gambell's (1986) study of language arts teaching, although important, is now mainly of historical interest.

Gambell's (1986) study does, however, allow for some comparative work to be done, at least in the area of novel study. He supplies a snapshot of the titles (he says of literature, but all his examples are in fact novels) approved by different provincial education departments in 1980. He does not include evidence of which titles were actually taught and at what grade level. His top 14 titles, those authorized by a majority of provinces, complete with the extra information he supplied are shown in Table 1.

This list is strikingly male (only two female authors out of 14, with an equally small number of female protagonists), strikingly white (all the authors and most of the characters are white and Western), and strikingly unicultural (with United States and British authors preponderant).

Applebee's (1993) extensive surveys of both public and private junior and senior high schools across the US found that a majority of teachers in that country were still teaching mainly male-dominated, canonized British and US texts. Most literature curricula were organized on a chronological basis, with students "covering" Western literature of particular historical periods. There was little attempt to introduce non-white writers and few contemporary texts. *To Kill a Mockingbird* and *Romeo and Juliet* were high on the favored texts for grade 10. In the eight years since Applebee's studies, there have been major changes in many states with teachers being required to introduce a particular percentage of texts by writers from minority cultures; a more up-to-date survey would be welcome.

At a theoretical level, much more information is available. The importance to young readers of being able to see themselves in their reading is attested to by many literary and pedagogical experts (Chambers, 1993; Dias, 1992). Many television programs and popular novels offer students a rather superficial reflection of contemporary life; the value of being exposed to a more substantial

Table 1
Titles Most Commonly Authorized in Canada in 1980

Title	*Author*	*Nationality of author*	*No. of province listed*
To Kill a Mockingbird	Lee, H.	US	8
The Pearl	Steinbeck, J.	US	8
Lord of the Flies	Golding, W.	British	8
Who has Seen the Wind?	Mitchell, W.O.	Canadian	7
The Old Man and the Sea	Hemingway, E.	US	7
The Chrysalids	Wyndham, J.	British	7
Animal Farm	Orwell, G.	British	7
The Red Pony	Steinbeck, J.	US	6
Pigman	Zindel, P.	US	6
Great Expectations	Dickens, C.	British	6
A Separate Peace	Knowles, J.	US	6
Lost Horizon	Hilton, J.	British	6
Lost in the Barrens	Mowat, F.	Canadian	6
The Incredible Journey	Burnford, S.	Canadian	6

(Gambell, 1986, p. 96).

kind of contemporary literature is that students are given the chance to try out new ways of thinking about and responding to the real pressures of their lives. A curriculum that concentrates on the standard texts that have been taught for the past 20 years can inadvertently communicate a disrespect for cultures outside the middle-class white mainstream, and also a lack of interest in a female perspective on the world (Morrison, 1992). As James (1994) suggests, curriculum choices that fail to take account of students' diverse backgrounds may inadvertently make students "feel invisible and insignificant and that their differences are irrelevant" (p. 27).

On the level of process it is also important for teachers to model ways of reacting to new and challenging texts. Too often teachers model an "expert" approach to reading, using texts they know inside out, an approach that assumes there is always a right answer and the teacher usually knows what it is (Nodelman, 1996). Our survey does not provide information about teaching strategies, but data about text selection offer an oblique perspective on what may constitute an acceptable level of risk in the classroom. Further analysis of the list of texts cited only once may shed further light on this complex territory, but that topic is not the focus of this article.

Method

With the cooperation of the school authorities and the English department heads, we approached all the grade 10 English teachers in the two mainstream systems. Teachers were asked to fill in one questionnaire for each different kind of class they were teaching at the time of the survey, spring 1996. Thus, if a teacher was teaching two English 10 classes and one English 13 class, she or he would fill in two forms: one for English 10 and one for English 13. We wanted to minimize the work for teachers while obtaining the maximum amount of information. Our working assumption was that a teacher would use broadly the same resources in two classes of the same course. Thus our 95 responses provide information about 95 courses, but almost certainly represent a smaller number of teachers as some teachers filled in more than one questionnaire.

We delivered the surveys to schools, speaking to meetings of the English department if requested. Rather than ask teachers to deliver or mail the completed surveys, we picked them up from the schools when they were completed. Our assessment is that this approach led to a higher degree of participation than might otherwise have been expected.

In the questionnaire we asked teachers to supply the titles of all the texts that were used over the course of the year or semester in each grade 10 class for which they were responding. We asked if students were ever given a free or limited choice of reading material. If students were given a choice from a list of suggestions, we asked teachers to append that list. We also asked teachers to provide information about the classes (number of boys and girls, special circumstances such as a high number of special needs students, and optional information about demographics). Finally, we asked them for some minimal information about themselves (gender, date of graduation from university, continuing education experience, and years in teaching).

The process of transferring the questionnaire answers to a database, locating complete bibliographical information for each citation, and establishing a

certain amount of background information about the texts and their authors was highly labor-intensive. Betty-Anne Schlender did the major part of this work, assisted in the later stages by Carlos Alonso and Jane Parkinson, and to them we owe our thanks.

Responses

Questionnaires were distributed to the 22 high schools in the public and Catholic systems in Edmonton, and grade 10 teachers from 21 of these schools responded. Not every eligible teacher in every school filled out a response, but a total of 95 responses (representing advanced, regular academic, and general English courses) provided detailed outlines of all the texts used in class over a single course, whether organized on a full-year or semester basis.

In total teachers provided 1,809 citations to texts in a variety of genres and formats: novels, short stories, poems, films, essays, and a small number of miscellaneous entries including journalism, a few audiorecordings, and two CD-ROMs. Of these entries 111 have so far proved to be impossible to support with data, so the database currently incorporates 1,698 citations pending further detective work (see Table 2).

The Courses and the Students

In Alberta grade 10 is the first year of high school. The major division between academic and general students is reflected in the two main English courses. English 10 is designed for the mainstream academic university-bound route. Some schools offer augmented courses for the more academic students: such courses are represented in our findings as English AP (Advanced Placement), English Pre-IB (the initial course of the International Baccalaureate program) or English honors. The main general course is English 13, and students who require more support are registered in English 16.

Of the 95 courses represented in these findings, 43 are English 10. Sixteen courses are some version of advanced or special course (IB, AP, etc.), and 35 are courses in the nonacademic stream. One class is taught as Humanities.

The gender distribution of students in these different courses showed that boys are overrepresented in the English 13 and English 16 classes. There are 516 boys and 293 girls in these courses, according to the teachers' returns. In the regular and academic streams, the numbers are fairly even, with 735 boys and 791 girls. In total the classes described in these responses include 1,151 boys and 1,084 girls, 2,235 students overall.

In our preliminary discussions with teachers we broached the idea of establishing a certain amount of background information about their students. Teachers were understandably reluctant to commit themselves to sociological shorthand to describe their classes, so we made it clear that any such description was optional. Even so, 33 of the 95 classes were described by their teachers as multicultural, and it seems possible that this number underrepresents the reality. The city of Edmonton more or less matches the national average for residents born outside Canada, with the 1996 census recording approximately 18% of Edmonton citizens in this category (Mitchell, 1997). This figure does not include second- and third-generation Canadians who also represent a variety of ethnic, cultural, and linguistic origins; furthermore, the figure does not include citizens of Aboriginal origin who may similarly bring a whole different

Table 2
Total Citations

Print Genres	*Number of Citations*	*Other Media Genres*	*Number of Citations*
Biography	1	CD-Rom	2
Essay	90	Documentary Film/Video	39
Journalism	4	Feature Film	266
Myth	56	Photo Essay	1
Novel	168	Television Comedy	3
Play	156	Television Drama	3
Poem	403		
Screenplay	2	Total	1,698
Short Story	501		
Song	3		

set of experiences and expectations to the classroom. One example of the kind of diversity present in Edmonton high schools lies in a survey conducted in 1998 in one large Edmonton high school that uncovered 55 different languages used in the homes of its students (Carson, Johnston, Chana, Leard, & Wittse, in press).

The teachers were happier to describe themselves, at least in terms of their educational backgrounds and teaching experience. From the 95 courses 74 responses supplied information about the teacher's date of graduation. Of these 74 replies 65 described teachers who graduated from university before 1990 and more than half who graduated before 1980. Women outnumber men by a factor of 3 to 1 (69-23—three responses did not provide information on gender).

Findings

In this article we focus particularly on the use of novels, plays, and films in the English classrooms, with a supplementary outline of the preliminary findings concerning short stories and poems.

Novels

The most striking aspect of the list of novels recorded was the intensive use of a small number of novels. The top 13 novels listed accounted for 104 of the 168 citations of novels. The top seven novels were cited 84 times altogether, compared with the total of 84 citations covering the remaining 52 titles. Thirty-six novels were cited only once each. At the other end of the scale, one title, *To Kill a Mockingbird,* appeared 36 times, being cited across all the course boundaries (see Table 3).

To Kill a Mockingbird is mainly taught in English 10 (25 citations), but it is also taught in the advanced courses (a total of 7 citations), in English 13 (3 citations), and in one English support class. Only *Romeo and Juliet* challenges it for domination of the city's grade 10 English classes. Anecdotal evidence from many other English-speaking countries suggests that the popularity of this title in high school English classrooms is widespread, both nationally and internationally, although some educators question whether it is not now out of date in

Table 3
Most Frequently Cited Novels—A Baker's Dozen

No.	Title	Date	Author	Author's Nationality
36	*To Kill a Mockingbird*	1960	Harper Lee	US
10	*Deathwatch*	1972	Robb White	US
9	*Children of the River*	1989	Linda Crew	US
9	*The Chrysalids*	1955	John Wyndham	British
8	*Lord of the Flies*	1954	William Golding	British
7	*Hunter in the Dark*	1982	Monica Hughes	Canadian
5	*Anne Frank: The Diary of a Young Girl*	1947	Anne Frank	Dutch
4	*The Adventures of Huckleberry Finn*	1885	Mark Twain	US
4	*Who Has Seen the Wind?*	1947	W.O. Mitchell	Canadian
3	*Animal Farm*	1946	George Orwell	British
3	*Hatchet*	1987	Gary Paulsen	US
3	*Waiting for the Rain*	1987	Sheila Gordon	South African
3	*Z for Zachariah*	1974	Robert C. O'Brien	US
104				

Total number of citations: 168.
Total number of individual titles: 59.

its assumptions of white liberal benevolence and superiority (Ricker-Wilson, 1998).

Information about the authors of these novels provides some interesting insights into the nature of grade 10 English courses. There were 59 titles cited, but only 57 authors. Mark Twain (*The Adventures of Huckleberry Finn* and *The Mysterious Visitor*) and Monica Hughes (*Log Jam* and *Hunter in the Dark*) appeared twice. Our background searches on authors revealed that, of the 51 authors for whom date of birth could be located, 63% (32 authors) were born in the relatively short period between 1900 and 1940. Eleven authors, or 21%, were born before 1900, and a mere 16% (8 authors) were born after 1940.

There is a clear tendency toward male authors (partly balanced out, presumably, by the many appearances of Harper Lee in actual classrooms). Of the 56 authors for whom gender could be clearly established, 64% (36 in absolute numbers) are men and 36% (20) are women. US authors outnumber Canadian and British added together (26 US authors, 12 British, 9 Canadian, and 11 listed under other nationalities, some of them with a connection to two countries rather than one, working from a total of 53 writers for whom national connections could be established).

Alberta has an authorized reading list for high school English, and this list is well represented in these findings. Of the 168 citations of novels 100 came from the authorized list. The fiction list for grade 10 includes 38 titles, and 19 of these were cited by teachers.

Both the authorized lists of titles for English 10 and English 13 and our own findings from this survey show a pronounced skew toward older material being used in the English 10 curriculum. Only three of the 14 novels suggested for English 10 by the Province of Alberta were published after 1980. By contrast,

on the English 13 list eight of the 13 titles were published after 1980. On the authorized lists the only contemporary titles were published either as young adult fiction or as adult fantasy (only two titles in the latter case). Of the novels listed by grade 10 teachers, every title published after 1980 is a young adult novel; there is not a single citation of an adult book published after 1980. We also know that the young adult books are largely being taught in the non-academic classes (a total of 44 citations to YA novels in English 13 and 16 as opposed to a total of 17 in the more academic streams), which suggests that the English 10 and IB and AP students are getting little exposure to contemporary novels.

Although the most popular titles in this 1996 survey are not identical to those listed by Gambell (1986) as authorized by the provinces in 1980, there is an overlap of several titles, and the predominance of *To Kill a Mockingbird* remains the same. Gambell's list is not confined to high school titles, and there is no doubt that some of his other titles are still being widely taught in junior high classes and in grades 11 and 12.

Plays

Like the novels list, the list of plays taught is dominated by a single author, whose identity will probably surprise no one. William Shakespeare towers over the play citations in thoroughly overwhelming fashion. There are 46 citations for *Romeo and Juliet* alone, and another 24 for other plays by Shakespeare, leading to a total of 70 out of 156 citations altogether (45%). Several other plays appear in more than one class list, but nothing remotely challenges Shakespeare's supremacy in these classrooms (see Table 4).

As with *To Kill a Mockingbird*, *Romeo and Juliet* is taught in every type of grade 10 English course, even in English 16, the least academic course represented on these lists. It might be suspected that some of the less academic courses rely on a film version, but all of these 46 entries say that the version

Table 4
Most Frequently Cited Plays

No.	*Title*	*Date*	*Author*	*Author's Nationality*
46	*Romeo and Juliet*	1597	W. Shakespeare	British
16	*Twelve Angry Men*	1956	Reginald Rose	US
11	*Merchant of Venice*	ca.1595	W. Shakespeare	British
9	*Inherit the Wind*	1955	Jerome Lawrence	US
5	*Julius Caesar*	ca.1610	W. Shakespeare	British
4	*Fiddler on the Roof*	1965	Joseph Stein	US
4	*The Hitchhiker*	1947	Lucille Fletcher	US
4	*Macbeth*	ca.1606	W. Shakespeare	British
4	*A Midsummer Night's Dream*	ca.1595	W. Shakespeare	British
4	*Pygmalion*	1913	G.B.Shaw	British
4	*Tell Me Another Story, Sing Me a Song*	?	Jean Lennox Toddie	?
111				

Total number of citations: 156.
Total number of individual titles: 41.

being described is a print edition. (We would welcome more information about *Tell Me Another Story, Sing Me a Song.*)

Films

The most striking feature of the list of most popular films is its strong connection to print literature. Almost all of the top 14 films relate to a text that also appears in the curriculum in its print form. Viewing is a strand of the mandated curriculum, but it would appear from these responses that viewing activities are strongly linked to the print-based texts. There is nothing wrong, of course, with viewing a movie connected to a print text, but it does potentially imply a secondary role for film (see Table 5).

Films of *Romeo and Juliet* and *To Kill a Mockingbird* overwhelm this list, as they do their original print lists. It is worth noting that the 1996 film of *Romeo and Juliet* had not been released at the time of this survey, let alone been made available in video form, and so all the citations refer to the Zeffirelli production. As with their print counterparts, these two films are shown in every course listed, from English 16 to the advanced classes.

A survey of the date of release for all the films shown in these English classrooms is weighted toward the 1960s by these two major entries in the list. Even so, it is notable how few contemporary films are being shown in these classes. Teachers may have varying rationales for this approach, but it does mean that students do not get much opportunity to discuss issues of content and form in contemporary moviemaking. The new *Romeo and Juliet* video will alter this state of affairs to a degree, of course, but without necessarily changing the emphasis on movies as apparent add-ons to books.

Table 5
Most Frequently Cited Feature Films

Number of Citations	*Title*	*Date*
44	*Romeo and Juliet* (Zeffirelli)	1968
30	*To Kill a Mockingbird*	1962
11	*Twelve Angry Men*	1957
8	*The Power of One*	1992
7	*Clash of the Titans*	1981
7	*Merchant of Venice*	1981
5	*Man Without a Face*	1993
4	*Apollo 13*	1995
4	*Field of Dreams*	1989
4	*Inherit the Wind*	1960
4	*Lord of the Flies*	1989
4	*Macbeth*	1984
4	*The Veldt*	1979
4	*West Side Story*	1961
140		

Total number of Feature Film citations: 266.
Total number of individual titles: 122.

Few media other than film or video appear in these citations. There are only 10 listings of audiorecordings, all dealing with songs or poems, and two citations of a CD-ROM.

Short Stories and Poems

Analysis of these genres is still going on at the time of writing, but some preliminary findings suggest that clustering occurs in these areas as well, although there is no dominant single title to compare with the novel and play citations (see Tables 6 and 7).

The short stories reveal the strongest component of Canadian content and the highest proportion of women writers. The list of the most widely used poets is predominantly male, and four of the 13 authors most frequently taught are Canadian.

Publication dates for stories and poems are taking longer to ascertain because teachers listed the anthology sources and we are still in the process of pursuing original dates of publication for these genres. Clearly much more work needs to be done with this information, and this challenge represents the next stage in this project.

Discussion

One striking element in all these lists is the vast amount of work being accomplished in the grade 10 English classrooms. Teachers attached large reading lists to their questionnaires and demonstrated a broad commitment to using a range of genres and styles. There is some evidence that Canadian material is used widely, especially in the fields of short stories and, to a lesser degree, poetry. This overview of the preliminary findings has concentrated on the titles that appear most often, but there is a broad range of titles that have been cited only once, and this article does not do justice to the quantity and quality of exploratory work being done in schools. We hope to rectify this omission as we make further progress in analyzing the returns.

The vast quantity of data returned by teachers means that the process of recording and analyzing has been relatively slow. However, the advantage of this detailed response lies in the vividness of the portrait supplied by so many examples of actual titles being taught. Generalizations about materials being used in classrooms can be useful, but the specificity of the lists of particular titles is informative in a different way. We were not able to find baseline Canadian survey work to compare with Applebee's (1993) extensive survey work in the US. Gambell's (1986) list refers to titles authorized rather than titles used, so it is not strictly comparable. We hope our survey will provide a benchmark for comparisons in future years. The introduction of the Western Canada Protocol will have an impact on Alberta classrooms, and our survey will provide comparative data concerning pre-Protocol classrooms that should prove useful in years to come.

There is a strong suggestion in these data that there is a clearcut "school canon," that the same texts are being taught at many different levels and in many different schools. It is notable that the main titles that dominate these lists (especially the novel and play lists) also appear in US surveys (Applebee, 1993), and informal evidence suggests that they feature heavily in British, Australian, and South African schools as well. Whether this overlap reflects a

Table 6
Most Frequently Cited Short Stories

Number	*Title*	*Author*	*Author's Nationality*
23	The Veldt	Ray Bradbury	US
17	The Father	Hugh Garner	British
18	The Half-Husky	Margaret Lawrence	Canadian
14	The Scarlet Ibis	James Hurst	US
14	The Sea-Devil	Arthur Gordon	US
13	Friday Everything Changed	Anne Hart	Canadian
12	Penny in the Dust	Ernest Buckler	Canadian
10	Alicia	Gabrielle Roy	Canadian
10	The Day of the Butterfly	Alice Munro	Canadian
10	The Interlopers	Saki	British
10	The Tell-Tale Heart	Edgar Allen Poe	US
9	Through the Tunnel	Doris Lessing	British
8	A Man Called Horse	Dorothy Johnson	US
8	An Ounce of Cure	Alice Munro	Canadian
8	Poison	Roald Dahl	British
8	The Witch	Shirley Jackson	US
192			

Total number of citations: 501.
Total number of individual titles: 181.

Table 7
Most Frequently Cited Poems

No.	*Title*	*Author*	*Author's Nationality*
7	David	Earle Birney	Canadian
7	Shall I compare Thee to a Summer's Day?	W. Shakespeare	British
6	About School	Anonymous	
6	Richard Cory	Edward A. Robinson	US
5	The Average	W.H. Auden	British
5	The Highwayman	Alfred Noyes	British
5	The Universal Soldier	Buffy Sainte-Marie	Canadian
5	Warren Pryor	Alden Nowlan	Canadian
4	Ex-Basketball Player	John Updike	US
4	The Man Who Finds that his Son has Become a Thief	Raymond Souster	Canadian
4	Nobody Loses All the Time	ee cummings	US
4	The Unknown Citizen	W.H. Auden	British
4	The World Is Too Much With Us	William Wordsworth	British
66			

Total number of citations: 403.
Total number on individual titles: 244.

positive global consensus that these are the best possible options, a lack of resources to buy new material, or a reflection of teacher familiarity and comfort with known texts is impossible to determine from our evidence. Applebee (1993), in his extensive survey of US teachers and the texts they teach, observed,

> Overall, the teachers were most comfortable with their teaching of "great works from the Western tradition," and least comfortable with adolescent/young adult selections and those by nonwestern authors. Reports of success with works by women and by minority authors were noticeably lower than for great works. (p. 81)

Teachers' comfort levels are not to be discounted. Ramsden (1997), looking at how examination boards in Britain select texts for syllabuses, observed, "Examination boards are aware teachers need to love the works they are teaching if the syllabus is to provide a good education as well as a final qualification" (p. 6). We did not canvass Edmonton teachers' attitudes toward the materials they taught; the whole question of teachers' true and private opinions of their teaching texts has the potential to be a substantial research study in its own right.

It is not clear to what degree the materials used in classrooms will change as teachers retire. According to a Statistics Canada survey, if the retirement age is 60 about 61% of elementary and secondary schoolteachers in Canada (211,000 out of 347,000) will retire between 1997 and 2015 (Galt, 1997). The potential for change in such circumstances is clearly considerable, but new teachers are often eager and/or obliged to replicate the work of those they replace because of pressures created by the lack of new resources and also because they often adopt materials and strategies they have used in their practicum experience.

It is evident, even from the teachers' tentative descriptions of their own classrooms, that the schools covered by this study are becoming more culturally diverse. However, the main entries in these different lists are still predominantly white, and such examples of a multiethnic perspective as exist are still largely offered by white writers such as Harper Lee, Linda Crew, and Ray Bradbury. There are few citations of writers from minority ethnic groups.

There is also little contemporary writing on this list. The huge majority of authors represented were born between 1900 and 1940, reinforcing the idea that there is a kind of school canon in effect that is largely white and "middle-aged." The way this canon is reflected in the film choices reinforces its ubiquity. To a degree this trend simply mirrors the Alberta high school official reading list; the selection of new resource lists to support the Western Protocol may offer an opportunity to consider changes. It is clearly vital that schools be given appropriate budgets to augment their current collections as the Western Protocol is implemented. It is also essential that the whole question of English teachers' time be readdressed; recent developments in Edmonton have reduced preparation and marking time for English teachers, and such an approach does not take a realistic account of the real needs of teachers and their students. Teachers cannot be expected to make changes that take account of the new realities in their classrooms if time to read, to think, and to prepare new

materials is constantly being diminished. Similarly, realistic and useful attention needs to be paid to teachers' inservice needs.

Conclusion

This article presents a preliminary analysis of some of the major data produced by a survey of grade 10 teaching materials in Edmonton English classes. Our purpose throughout this project has been to document, not to judge, and to provide concrete and detailed baseline information for subsequent studies that may follow changes in the classroom over the next several years. Although much work remains to be done, some trends are clear. At present most texts presented in these classes are written by white Western writers, largely those born between 1900 and 1940. The challenge to teachers is to find ways of teaching texts that take broader account of the age and ethnic composition of their classes without losing the energy and commitment so clearly represented in the returns to the survey.

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Differences in Word Recognition Based on Approach to Reading Instruction

Two groups of grade 2 students who differed in their teacher's instructional approach to reading were compared on various word recognition tasks. Fifty-four students participated in the study, 27 from whole language classrooms and 27 from phonics/skills-based classrooms. Reading level was assessed using the Gates MacGinitie reading comprehension subtest (MacGinitie & MacGinitie, 1992). From the Gates MacGinitie, a criterion at or above the 25th percentile was established for participation. At the end of grade 2, these tasks were administered to all the students: (a) word identification with words presented in isolation and in context, (b) a grapheme substitution passage, and (c) a cloze procedure. The cloze procedure was the only measure to show significant difference between the groups favoring whole language classrooms. There were no other significant findings between the two instructional groups suggesting that for these students instructional approach had little effect on word recognition strategies.

Deux groupes d'élèves de la 2e année qui avaient reçu un enseignement différent en lecture furent comparés à partir de différentes tâches en identification de vocabulaire. Cinquante-quatre élèves participaient à l'étude; 27 provenant de classes se servant de la méthode globale et 27 de classes se servant de la méthode phonique. Le niveau de compréhension en lecture fut déterminé par le test en compréhension de lecture Gates MacGinitie (MacGinitie & MacGinitie, 1992). En se servant du test Gates MacGinitie, le critère de participation fut établi au 25e percentile ou plus. À la fin de la 2e année, les élèves furent soumis aux tâches suivantes: (a) l'identification des mots en situation isolée et en contexte; (b) la substitution de graphème dans un extrait; et (c) la procédure "cloze." La procédure cloze fut la seule mesure à démontrer une différence significative entre les groupes enseignés selon la méthode globale. Aucune autre différence significative ne fut notée entre les deux groupes, suggérant que l'approche pédagogique avait peu d'effets sur les stratégies de reconnaissance du vocabulaire.

Teachers usually prefer and select one of two philosophies or approaches to teach beginning reading. One of these approaches involves whole language (WL), focused on using oral language experiences as a basis for learning to read from the context of real literature. The other involves a phonics/skills-based (PSB) approach, focused on letters, sounds of letters, and word identification. Advocates for one or the other of these two approaches argue as to which is most appropriate for teaching reading.

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The dispute between proponents of these two approaches, PSB and WL, has existed for decades. In her seminal work, Chall (1967) referred to this dispute as "The Great Debate." The fact that this debate has been conducted not only in academic journals, but also in mainstream periodicals speaks to the importance of this issue for reading instruction. In a 1990 *Newsweek* article, Kantrowitz reviewed the controversy between advocates for a PSB or for a WL approach. He drew a parallel between a real war and the tension between these two camps. In 1992 Mather stated that WL teachers were changing the way reading and writing instruction is carried out in the schools. By 1996 Levine, writing in *Parents* magazine, reported that WL was the basis for the failure of many students to acquire reading skills. Vacca (1996) indicated that "the Reading Wars" going on in the media, legislatures, and in schools remained the major issue in the teaching of reading.

What is the core issue between these two sides? The basic issue is whether learning to reading is a natural process like learning to talk. Goodman (1986), supporting a WL approach, emphasized the natural learning of oral language and suggested that learning to read should be a natural process if meaning is the objective. On the other hand, Evans and Carr (1985) contended that teachers who follow a PSB approach believe that reading is not a natural process and must be taught using direct instruction.

For the WL teacher the underlying belief is that students will learn language rules without explicit instruction (King & Goodman, 1990). In the classroom the teacher teaches skills and strategies in the context of reading and writing, not in isolation. A variety of strategies for word identification are taught with no one strategy such as phonics used exclusively (Stahl, McKenna, & Pagnucco, 1994)

In the PSB classroom, in the initial stages of learning to read students are taught basic skills that aid in the decoding of written words. These skills include becoming aware of sounds in words and learning how to connect oral sounds with letters and words. This awareness of sound units in words, or phonological awareness, has been cited by many researchers as essential to the reading process (Share & Stanovich, 1995; Torgesen, Wagner, & Rashotte, 1994).

One of the specific areas of concern in learning to read that is common for both approaches is word recognition and how this is taught. Besner and Humphreys (1991) indicated that for over two decades research in visual word recognition has been a predominant topic in cognitive psychology. WL proponents reported that when students learned words from context, as opposed to learning from word lists, they made fewer mistakes (Goodman, 1965). They also believe that teaching the learner to rely on precise word identification skills may result in a reliance on graphic information only, which may impede reading development (Smith, Goodman, & Meredith, 1970). Context is viewed as essential for word identification because it provides meaning to the identification process (Goodman, 1986). The word gathers its meaning from other words around it and from the structure of the story.

Ediger (1995) stated the PSB position regarding teaching skills for word recognition. The students must be taught phonics, syllabication, and configuration clues, all of which are part of the word recognition process. Thus, in a PSB approach, students learn the individual sounds of words, which helps them to

identify words (Freppon, 1993). Rules for this process are taught, and both phonological processing and the alphabetic principle are addressed.

Pressley and Rankin (1994) surveyed teachers as to the approach they employed to teach beginning reading. Almost all the teachers in their survey indicated "that they were either WL teachers or at least WL teachers part of the time" (p. 164). In this survey, what teachers practiced in class was generally consistent with their WL preference. Sacks and Mergendoller (1997), in a study of kindergarten teachers, reported that WL teachers and PSB teachers stressed different literacy activities in accordance with their instructional beliefs. The question that remains from these studies is what impact teachers' instructional beliefs have on the skills and processes that are developed by the beginning reader, particularly in the development of word recognition ability.

The purpose of this study was to determine differences in students' word recognition tasks based on teacher's stated approach to teaching beginning reading, WL or PSB instruction. A quasi experimental design was chosen for this study.

Method

Classrooms

Grade 2 teachers were asked to identify their approach to reading instruction. The teachers' professed instructional philosophy was used as a basis for the selection of grade 2 classrooms. All the teachers were women. Each teacher was asked in an interview to define her philosophy of reading instruction and describe how it was reflected in her reading program. The interview was followed by classroom observations, which were carried out by the first author.

In WL classrooms teachers stated that students learn to read and write through meaningful interactions with literature. Students are taught to read for a purpose and learn to read through reading. The teachers stated that students also learn to read through their own writings. Integrated into the routine of all the WL classrooms was a writing program that included writing daily journals, poems, and stories. Teaching phonics occurred only incidentally and not as part of direct instruction. Word recognition was taught using the context of each story.

In PSB classrooms teachers stated that instruction should occur in a systematic and sequential manner. This included direct instruction of phoneme-grapheme correspondence rules. The PSB teachers stated that students need to be taught prerequisite skills in order to read, and it is through these taught skills that students are able to decode new words. In these classrooms students are encouraged to sound out unfamiliar words. Students' attention is directed to both individual letter-sound correspondences and to larger word segments such as syllables. Before reading a new story, teachers first reviewed new words, attending to the salient sound features associated with letter combinations contained in the words. Next the teacher reads the new story aloud and then asks students to follow along while she rereads the story. In these classrooms the students also work in teacher-constructed printing books where they practice copying letters, sentences, and passages. Word recognition is taught out of the context of continuous print.

Five classrooms were chosen from four schools: three where the teachers followed a WL, literature-based approach and two where the teachers used a PSB, sequential approach to instruction. Because two of the WL classrooms were grade 2-3 splits, a third WL classroom was required to obtain an equal number of students from each instructional approach.

Participants

A total of 54 grade 2 students received parental permission to participate and achieved above the minimum reading requirement for this study. Reading level was assessed using the comprehension subtest of the Gates-MacGinitie Reading Test, Second Canadian Edition, Level B (MacGinitie & MacGinitie, 1992). The criterion score for participation was set at the 25th percentile, corresponding to a grade equivalent of 2.2 (*T*-score = 43). We thought that students reading below this level would find the selected passages too difficult and therefore, for ethical reasons, they were not included in this study. Grade 2 students were selected, as most of the students at this grade level could read well enough to complete the word recognition tasks used in the study as opposed to grade 1 students. By grade 3 too many students will have developed an integrated approach to reading, reflective of Chall's (1972) Stage 3 of reading development. There were 16 boys and 11 girls in each group. The average age for the WL group was 93.7 months and for the PSB group 94.4 months.

The average reading comprehension score for the WL group (n=27) was grade 4.2 (*T*-score = 57) and for the PSB group (n=27) was grade 4.3 (*T*-score = 58).

Instruments and Procedures

Testing was conducted while the students were in the final six weeks of grade 2. In an initial session the students of each classroom as a group were given the comprehension subtest of the Gates-MacGinitie Reading Test (Level B). In two classrooms the students were administered this test by their teacher, and in the three remaining classrooms the test was administered by the first author. All students received this test in the standard administration format. The remaining three tasks were administered individually by the first author in a separate session. Each student was told that he or she was going to read some words and stories and be asked some questions about the stories. The students were also informed that a tape-recorder was being used to help the researcher remember what they said.

Word identification. To determine if context was differentially helpful in the process of word identification to the students from the two instructional groups, 40 words were selected and presented in two conditions—in isolation and with surrounding context. Twenty words were selected from the Word Recognition test of the Brigance Diagnostic Comprehensive Inventory of Basic Skills (Brigance, 1983), high-frequency words that are composed of the phonetic and orthographic features taught in grades 2 and 3. Of these 20 words, 10 were from the grade 2 level and 10 from the grade 3 level. The remaining 20 words were selected from a revised Dolch Basic Word List (Elley, Croft, & Cowie, 1977). Ten words were selected from a list of 100 of the most frequent words, and 10 words were selected from the second most frequent 100 words

occurring in basal readers. The words in isolation (without context) were presented in four lists; in the in-context format each word was underlined and placed in a discrete sentence that was contextually unrelated to the other sentences (e.g., The family lived in a big *house*). In 85% of the sentences the target word was placed so that an equal number or more words in the sentences preceded the target word. All words used in constructing the sentences were found in a grade 2 vocabulary list (Early, Cooper, & Santeusanio, 1979). On the in-context task students were asked to tell the examiner what the underlined words were. They were not asked to read the whole sentence but were not discouraged if they did so.

Grapheme substitution passage. This passage was selected from the experimental tasks used by Hong-Kim and Goetz (1994) to measure students' relative dependence on graphic and contextual information. The passage was a story consisting of 15 sentences with an end-of-grade-2 difficulty level. In each sentence one word was changed by substituting a single letter (e.g., She dressed warmly in her goat-coat). Each change produced another real word, and each of the letters chosen produced words that violated the original meaning of the sentences. Neither the altered nor the original words was repeated in the other sentences of the passage. The purpose of this task was to investigate whether group differences existed in the identification of the words through their graphic cues versus their contextual cues. After reading the passage aloud, the students were asked 10 comprehension questions. Each of the 15 words was coded as *altered* if it was read as the changed word, *original* if it was read as the word consistent with the context, or *error* if an unrelated word was identified.

Cloze passage. In the cloze passage students were asked to determine the identity of deleted words (Collins & Cheek, 1993). Because no graphic cues were available, this task was used to explore group differences in word prediction skills. The passage was selected from the Alberta Diagnostic Reading Program (Alberta Education, Student Evaluation Branch, 1986). This passage was written at a difficulty level consistent with the end of grade 2 and was created by deleting every fifth word. At the end of the passage, 10 comprehension questions were presented. The students were asked to read the passage aloud and orally give the missing words. To ensure that all students were aware of the task requirements, the experimenter read the two beginning sentences and orally filled in the first two deleted words. The students were then asked if they knew how to do the task and to begin where the experimenter had stopped. A 10-question comprehension test was administered after completion of the passage.

Order of Task Presentation

To guard against sequencing effects where the order of the three tasks could influence performance through practice effects, an incomplete counterbalancing technique was used (Christensen, 1991). Four orders were created so that each of the tasks appeared an equal number of times in each ordinal position and each task preceded and followed every other task an equal number of times. Two of the orders were repeated 13 times and two 14 times.

Results

Independent *t*-tests for group mean differences were conducted on the eight dependent measures. Results of t-tests are presented in Table 1. On the word identification tasks no significant differences were found between the mean number of correct responses in either the isolated or the context conditions.

Responses for the target words in the grapheme substitution passage were coded into three groups—original words, altered words, and errors (Hong-Kim & Goetz, 1994). When a child produced a spontaneous correction, it was the first response that was scored. For example, if in the sentence "She dressed warmly in her goat" the child responded with the altered word goat and then spontaneously self-corrected and answered "coat," the first response, goat, was scored as an altered response. We believed that the child's first response more accurately represented the process of word identification versus comprehension (Stanovich, 1994). Spontaneous corrections occurred 6% of the time in the responses of WL students and 7% of the time in the responses of PSB students. The number of altered words, original words, errors, and the number of comprehension questions correctly answered were compared for each group and no statistical differences were noted (see Table 1).

On the cloze task the students were asked to predict orally 24 missing words from sentences in a story. The WL group had a larger mean number of correct responses in this category than did the skills group ($p<.01$).

Because of the similar performance between the two groups for seven of the eight variables, correlations were conducted with groups collapsed. The results of this analysis are presented in Table 2. Significant correlations were found between the majority of measures. Because of the number of tests of significance conducted, the level for significance was set at $p<.01$. The Gates MacGinitie comprehension score was significantly correlated with words in isolation ($r=.4998$, $p<.01$), words in context ($r=.5146$, $p<.01$), cloze ($r=.5913$, $p<.01$), and altered words ($r=.3924$, $p<.01$) showing an overall relationship between the dependent variables and reading ability. The ability to read words in isolation was significantly correlated with ability to read words in context

Table 1
Results of Independent T-tests Conducted on Each of the Dependent Measures

Measure	*Skills Means*	*W-L Means*	*Total*	*t-value*	*p*
Words in isolation	33.7	35.26	40	−1.23	.223
Words in context	34.41	36.19	40	−1.56	.124
Altered	10.78	10.85	15	−0.13	.899
Original	3.26	2.96		0.64	.522
Errors	.85	1.26		−1.23	.223
Passage comprehension	6.15	6.70	10	−1.17	.248
Cloze	9.44	12.44	24	−2.88	.006**
Passage comprehension	5.94	6.81	10	−1.65	.104

**$p<.01$.

Table 2
Correlation Between Student Scores

	Gates	*Words*	*Context*	*Cloze*	*Altered*
Gates					
Words	.4998**				
Context	.5146**	.8703**			
Cloze	.5913**	.6443**	.6284**		
Altered	.3924**	.5487**	.3025	.3019	
Original	−.2771	−.1398	−.0047	−.1561	−.7630**

**$p<.01$.

($r=.8703$, $p<.01$), and performance on cloze was related to both words in isolation ($r=.6443$, $p<.01$) and words in context ($r=6284$, $p<.01$). There was a strong negative correlation between original and altered words on the grapheme substitution passage ($r=-.7630$, $p<.01$).

Discussion

The purpose of this study was to determine if there were significant differences in word recognition skills depending on whether students were instructed in a WL or a PSB classroom. With the exception of the cloze activity no significant mean differences were found. Cloze activities are used in the WL classrooms as an explicit instructional tool but not in the PSB classrooms. Therefore, the significant findings for this variable may reflect the effect specific instructional techniques have on students' performance. Cloze activities in part reflect the ability of readers to use prediction as they read. Thus, although word recognition was a part of this task, so was prediction, and students from the WL classrooms demonstrated significantly better prediction abilities. There were no other converging findings indicating that differences in instructional practice produced differences in the type of information used in word recognition.

There were no significant differences between the two groups on the remaining word identification tasks. The similar performance of both groups on the words in isolation condition demonstrated equal competence in the use of graphic information in word identification. The semantic information provided in the words-in-context condition did not provide a significant advantage to either group in the facilitation of word identification. Similarly, in the grapheme substitution passage where one letter of a word in each sentence was changed (i.e., coat-goat), differences between the students in the two groups for use of graphic (altered) or contextual information (original) were not significant. The significant correlation between the identification of altered or original words suggests that there was an overall preference by students in both groups to identify the words as altered. This result suggests that the students relied predominantly on graphic information over contextual information for word recognition for this task.

The major purpose of the study was to determine whether students from WL classrooms would differ in word recognition abilities compared with those from PSB classrooms. The results suggest that few overall differences existed.

Students taught in a program focused on using contextual information (WL) performed significantly better on only one task measuring use of this information for word identification than students taught in a program that focused on graphic information (PSB). As well, students taught in the PSB approach did not use graphic information significantly more for word identification than students taught in a WL approach. In terms of word identification, the performance of the two groups was more similar than different.

These findings are consistent with two streams of research. The first indicates that once students become proficient decoders, they tend to rely more on graphic than contextual information for word identification (Stanovich, Cunningham, & Feeman, 1984; Tunmer & Chapman, 1996). The students in this study were becoming proficient readers; students below reading grade 2.2 were not included in this study for ethical reasons.

Alternatively, there is also evidence that indicates teachers adjust their reading programs and integrate aspects of each approach. Stanovich (1994) stated that teachers are pragmatists and that they teach what works. By its nature pragmatism opposes rigidity in philosophical orientation and allows flexibility in teachers' choices of instructional tools. This observation is consistent with the findings of Pressley and Rankin (1994) where the WL teachers in their sample incorporated a number of teaching practices that included the direct instruction of letter-sound correspondences. Although the WL teachers indicated that they generally taught discrete skills in the context of continuous text, they also taught discrete skills in isolation, especially for weak readers. The converse was also true where supporters of direct phonic instruction used context as a vehicle for the teaching of specific phonetic strategies (Pressley & Rankin, 1994). Similarities in classroom practices were also noted by Sacks and Mergendoller (1997) in their examination of the relationship between a teacher's theoretical approach and student achievement. They found many similarities between WL and PSB classrooms, including type of classroom activities and time spent involved in various activities, although they did note that "there were subtle, and meaningful differences in the classroom literacy experiences of students" (p. 734).

Finding "pure" representations of each orientation appears to be increasingly difficult as teachers incorporate both approaches into classroom instruction. Although the teachers' observed practices in this study reflected their stated approach to reading, there may have been more similarities between the practices in WL and PSB classrooms than were apparent in classroom observations. Because the only difference between the two groups of students was in the cloze activity, the teachers in this study appear to have taught to the individual needs of the students rather than limiting instructional practices to those consistent with only one approach.

Teachers sensitive to the individual learning needs of their students encourage strategy development and implementation techniques that encompass both approaches to reading. Mixed or eclectic programs are emerging that provide the best of both the traditional and WL approaches (Stahl et al., 1994). Mixed or eclectic programs are viewed as providing the best of both the traditional and WL approaches (Mather, 1992; Stahl et al., 1994).

The results of this study indicate few overall differences between the WL and PSB programs with respect to word recognition skills, and point to the need for further work exploring the elements of effective classroom practice. Perhaps the time has come to take the next step and address how WL and PSB approaches can be combined to create a powerful eclectic approach. Then the question changes from Which is the most effective program? to What are the effective aspects of each program? We need to move ahead to research effective approaches to reading instruction rather than remaining static and the continuing debate that has persisted for 30 years.

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Panel Discussion

The opening panel discussion at the Literacy in the 21st Century Research Conference focused on workplace literacy. Carolyn Dieleman from Advanced Education and Career Development organized this session to present the perspectives of three key players in workplace literacy—business, government, and university. The article in this section presents highlights of this panel discussion based on presentations and conference notes provided by participants on the panel.

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Workplace Literacy: Business, Government, and Academic Perspectives

Compilation and comments: *Grace Malicky*

Moderator: *Carolyn Dieleman*
Advanced Education and Career Development, Government of Alberta

Panelists: *Lloyd Campbell*
Senior Advisor, Education and Development, Syncrude Canada Ltd.

Bill Wong
Director of Evaluation, Advanced Education and Career Development, Government of Alberta

Harvey Krahn
Professor, Department of Sociology, University of Alberta

In her opening remarks Carolyn Dieleman explained that workplace literacy is a relatively new field growing out of increased awareness of literacy in general as well as an increased emphasis in our society on the "bottom line." Workplace literacy has been an active field in Alberta since 1988 when Syncrude introduced "Effective Reading in Context," followed by programs offered in Lethbridge, Calgary, and Edmonton.

Workplace literacy programs in Alberta have generally been offered either as longer-term programs by large companies or shorter-term programs by smaller companies. In either case employers have a history of funding programs themselves, sometimes in cooperation with unions, rather than seeking government support. Some of the bigger companies that have offered programs include the Calgary Herald, Flint Engineering, Imperial Oil, Husky Oil, and Alberta Power.

At the national level approximately 500 workplace literacy programs have been developed over the past decade. According to Dieleman, the National Literacy Secretariat has been instrumental in igniting interest and support for workplace literacy across Canada. In his book *Workplace Education: The Changing Landscape* Taylor (1997) wrote about the profound changes occurring in the Canadian work environment:

> As firms search for continuous improvements in quality and greater flexibility to respond to market demands, workplace education has taken a new place in the landscape. Similarly, as technology change creates new skills and reroutes the flow of information, basic skills training is now being viewed as a critical force in the learning panorama. In this time of instability, workers are finding that they do not have the necessary skills needed to remain in the current workplace and are, therefore, becoming life long learners. In short, workplace education has

> become recognized as a tool for personal, organizational and economic development. (p. viii)

Although literacy practitioners recognize the benefits of workplace programs, employers sometimes ask about the return on investment. To address this, Dieleman referred to a document published by the Conference Board of Canada in August 1997 entitled *The Economic Benefits of Improving Literacy Skills in the Workplace* (Bloom, Burrows, LaFleur, & Squires, 1997). Some examples of benefits cited include increased ability to handle training on the job, better team performance, improved labor-management relations, increased quality, improved results in job-specific training/quicker training results, reduced time per task, increased output of products and services, reduced error rate, better health and safety records, reduced waste, increased retention of employees, increased profitability, increased customer retention, reduced absenteeism, and success in transferring employees.

Syncrude Canada's Workplace Literacy Program

Syncrude Canada Ltd. was not only the first company in Alberta to develop a workplace literacy program, but theirs has been recognized as one of the best, receiving the Governor General's Award for Literacy in 1995. Lloyd Campbell introduced the company's workplace literacy program by noting that the Athabasca oil sands deposit has the potential for 300 billion barrels of oil and that Syncrude has introduced new technology for extracting oil from the oil sands. With this new technology has come what Campbell refers to as the company's "new common sense," encouraging employees to think and act like owners.

The Effective Reading in Context (ERIC) program was conceived as a response to a need identified by Syncrude. The company wished to move toward increased participative management, but was concerned about the shrinking pool of skilled workers, the trend toward multiskilling of workers, and the need to remain competitive in the global marketplace. ERIC is designed to provide reading strategy development for workers at all levels in the company. Tradespeople and operators receive literacy experience and exposure to ensure that they maintain their literacy skills, and planners and office staff fine-tune their reading skills. Because of increased literacy demands and awareness of the needs of management, engineers, and other professionals, the program has been extended to enhance development of their technical and academic skills as well.

Recently Syncrude has extended ERIC to include a numeracy component: Working in Numeracy or WIN. As with ERIC, all components of this program were developed with the assistance of employees, all reflect workplace materials, and although the program concepts are integrated, they may also be taught as stand-alone skills.

According to Campbell, the need for workplace literacy programs at Syncrude was confirmed in 1996 (Statistics Canada, 1996) by results on the International Adult Literacy Survey (IALS).[1] Data for prose literacy of all Canadians aged 16 and over revealed that 22% of Canadian adults were found to be functioning at Level 1 in literacy skills development. Individuals at this level have great difficulty with literacy, have few basic skills available to them to

decode and work with text, and are generally aware that they have problems. Individuals at Level 2 (26% of Canadians) have limited skills. They can read only simple material that is clearly presented and can engage in tasks that are not too complex. This category includes people who would have trouble learning new skills requiring higher literacy. Thirty-two percent of Canadians are at Level 3; they possess adequate basic skills for working in many situations. Individuals at levels 4 and 5 (20% of Canadians) have a wide range of literacy skills and can handle new reading challenges.

Campbell views Syncrude's workplace literacy program as having benefits for employees, the company, and the community. Benefits for the employees and company include increased skills of employees, enhanced confidence of employees as workers and learners, increased productivity, national and provincial recognition, and development of a program consistent with corporate vision and values. In relation to the community, Syncrude has established links with the local community college and volunteer literacy program and in addition has made the ERIC program accessible to other employers.

Campbell identified several areas for further research on workplace literacy including the need to investigate participants' perceptions of the impacts (cost and benefits) of workplace essential skills training in different programs. He also recommended "best-practices" studies of organizations that make effective use of the literacy skills of employees so that skills are not in danger of being lost. Other questions revolved around the impact of computerization on workplace literacy requirements, the role of essential skills training in the apprenticeship process, and ways to encourage participation in workplace literacy programs.

Implications of the IALS for the Labor Market

Bill Wong from Advanced Education and Career Development highlighted implications from the IALS report for the labor market. Findings indicate that individuals with poor literacy skills have reduced employment opportunities; however, from a workplace literacy point of view, a more important finding, according to Wong, is that many individuals with low literacy skills are in the workplace. Three quarters of individuals at Level 1 on the prose scale and nine out of 10 of those at Level 2 who are in the labor force are employed.

Another significant finding is that individuals at lower literacy levels are less likely to be upgrading their skills than those at the higher levels. Individuals at higher levels are more likely to participate in all aspects of adult education and training. Among Canadians between the ages of 16 and 65, only one in five (21%) of those who were at prose Level 1 had participated in adult education or training in the past year, whereas almost three in five (58%) of those at Level 4/5 had participated.

The IALS results also have implications for employers; one important characteristic of a good job is that it should provide opportunities to maintain and enhance literacy skills. Because a large proportion of one's reading is done at work, the report states that "Jobs may cause literacy as much as they require it" (Statistics Canada, 1996, p. 55). The IALS data show that opportunities to use literacy skills in the workplace vary substantially among occupations. For example, 90% of managers and 95% of professionals read letters or memos at

least once a week, compared with 58% of machine operators and 46% of those in elementary occupations. Similarly, 83% of managers and 85% of professionals read reports, articles, magazines, or journals at least once a week, compared with 42% of service workers and 30% of skilled craft workers.

International comparisons are striking. There are three times as many skilled craft workers at Level 1 in Canada as in Germany, the Netherlands, and Sweden (prose and document scales), and there are more than twice as many Canadian machine operators or assemblers at Level 1 (document and quantitative scales) than workers in the same occupation in Germany and the Netherlands. These differences are also reflected in the findings on workplace reading tasks. Forty-three percent of Canadian skilled craft workers read letters or memos at work at least once a week, compared with 69% of their German counterparts. Thirty-two percent of Canadian machine operators read manuals or reference books at work at least once a week, whereas the corresponding figure is 51% in Germany.

Because the literacy demands placed on some individuals in the workplace are minimal, it is not surprising that so many people with low literacy skills do not perceive a problem. Eighty-seven percent of people at Level 2 and 49% of those at Level 1 rated their reading skills for work as good or excellent. Forty-four percent of those at Level 1 on the prose scale said their writing skills for work were good or excellent. Their skills may possibly be good or excellent for the work they are currently doing, but these individuals are unlikely to be able to cope with changing requirements and new technology. People are unlikely to take action to improve their literacy skills if they are unaware of the need for improvement.

From an Advanced Education and Career Development perspective, Wong indicated that the major concern should perhaps be with retention and transferability of skills from one work context to another. He posed a number of questions: What are the factors (individual, training-related, work organization) that increase transferability? What are the factors (both on and off the job) that maximize retention of literacy skills? How well do existing programs provide opportunities for learners to exercise and consolidate new or improved skills on the job? Wong also recommended research on the role of unions in basic skills programs, on the nature, role, and impact of needs analysis on workplace literacy programs, and on how realistic employers are about their employees' skill levels in companies without basic skills programs.

Literacy Utilization in Canadian Workplaces

Harvey Krahn reported on research on IALS data completed by him and Graham Lowe (Krahn & Lowe, in press). The underlying concern of most literacy research is on literacy deficits and on the detrimental impact of an insufficient supply of highly literate workers on the economy. In contrast, Krahn and Lowe are concerned with what they call a literacy surplus—individuals who have high levels of literacy and numeracy in jobs that require few skills. When literacy is viewed as a form of human capital, Krahn and Lowe ask whether this literacy surplus will result in a loss in human capital.

Data on the use of literacy skills on the job reveal that between 20% and 50% of employed Canadians rarely or never read on the job. Between 30% and 60%

rarely or never write on the job, and approximately 40% rarely or never do mathematical operations on the job. Because only approximately one third of employed Canadians were found to be functioning at Levels 1 and 2 on the IALS (prose, document, quantitative), it is obvious that a significant number of people (up to 20%) with higher levels of literacy are in jobs that offer few opportunities for use of these skills.

The focus of Krahn and Lowe's analysis was on the degree of match or mismatch between literacy skills and literacy use by employed Canadians. They identified five categories, three involving a match between literacy skills and use (low literacy skills/low use; medium literacy skills/medium use; high literacy skills/high use). The other two categories reflected a mismatch. A literacy deficit was evident when individuals with low literacy skills were employed in high-use jobs; a literacy surplus occurred when highly skilled workers were in jobs where they had few opportunities to use their skills.

The number of individuals in each category was calculated and results for document literacy revealed that

> about one in six (17%) employed Canadians had low document literacy skills and were in jobs that roughly matched their skill levels. One third (33%) were in the medium-medium category, whereas almost one quarter (24%) had high document literacy skills and were in jobs that required such skills. Thus about three quarters of employed Canadians appear to be in a "matched" labor market position, employed in jobs that take advantage of their document literacy skills. The remaining 26% are "mismatched." (Krahn, 1997, p. 19)

When the mismatched categories were examined for document literacy, there was more evidence of literacy surplus than deficit. Only 5% of employed Canadians were classified as overemployed, whereas 21% were underemployed. On prose literacy there was approximately a 3.5 to 1 ratio of literacy surplus to literacy deficit, and for quantitative literacy the ratio was approximately 2 to 1.

Although difficult to prove with cross-sectional data, Krahn and Lowe's analysis provided provocative evidence that workers who spent longer periods of time in low-literacy use jobs may, controlling everything else, exhibit lower literacy skills. This raises the possibility that these workers have lost some skills.

One implication of this research is the need for employers to upgrade jobs as well as literacy skills of employees. The goal should be to aim for more employed Canadians in the high-high category of literacy skill and use. According to Krahn (1997), the central question is:

> how to upgrade or enskill the Canadian labor market. How do we encourage Canadian employers to create jobs at the upper end of the skill continuum and to take greater advantage of the skills their employees bring to the workplace? What incentives are needed to entice knowledge-intensive firms to set up [in] Canada, rather than elsewhere? ... In short, how do we better utilize our current stocks of human capital, thus ensuring that it is not transferred or lost outright. (p. 21)

Synthesis and Comments

All three panelists in this discussion referred to and built on the findings of the International Adult Literacy Survey. However, literacy researchers are far from unanimous in their support of the concept of literacy that served as the basis of the study or of the survey instrument used (Graff, 1997; Jones, 1997; Street, 1997). The major disagreement involves the extent to which IALS reflects a cognitive, decontextualized model of literacy. Although the validity of the results has been questioned by those who hold a more contextualized view, there is no denying that the study has kept literacy in the forefront of public attention and has led to increased funding of literacy by government and business.

From their reading of the results of IALS, all three panelists emphasized that both employers and employees have important roles to play in literacy development and maintenance. It is not just a matter of workers developing more adequate literacy skills to fulfill the needs of the economy. Employers also have a responsibility to ensure that jobs available to employees require literacy use consistent with skills brought to the workplace. Workplace literacy means providing basic literacy programs for those in need of skill development as well as creating more jobs at the upper end of the skills continuum.

Some educators question the motives of employers in workplace literacy programs. Are employers concerned about the well-being and skill development of employees, or are they primarily concerned with the bottom line? As with all literacy programs there is a potential for both positive and negative outcomes. Literacy is a two-edged sword—it can be used for social control or it can be used for empowerment of individuals (Graff, 1987). The best workplace literacy programs are those designed to meet the needs and goals of both employees and employers.

Note

1. The International Adult Literacy Survey was a seven-country initiative conducted in the fall of 1994. Its goal was to create comparable literacy profiles across national, linguistic and cultural boundaries. An assessment instrument developed by Statistics Canada for the study included three scales to measure prose, document and quantitative literacy.

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Research Notes: Guidelines

The *Note* should report briefly on the author's/authors' research-in-progress or recently completed research and should feature work that has not been reported elsewhere in journal publications. This current work should be situated, briefly, in the context of other pertinent scholarship, including the author's or authors' related research. The focus of the *Note* could be either a specific study or inquiry or an overview of an ongoing line of inquiry where fuller reporting of results will not occur in print for some time. The maximum length for a *Note* is 1,000 words (about 4 double-spaced pages in standard 12-point type), excluding references and one or two tables or graphs. To encourage communication between researchers, authors of *Research Notes* are asked to provide contact information such as e-mail, fax, and/or telephone numbers for publication with each *Note.* No abstract is required, but in all other respects the usual **ajer** guidelines for manuscripts should be observed.

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The Alberta Journal of Educational Research *Vol. XLIV, No. 2, Summer 1998, 239-241*

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and
Dianne Oberg
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Learning to Use the Internet: A Study of Teacher Learning Through Collaborative Research Partnerships

Research on the implementation of new technologies in teaching indicates that success with innovation is dependent on support for teacher learning and on teachers' positive attitudes toward the innovation (Clement, 1981; Woodrow, 1991). Teachers must perceive a need for using the innovation in their teaching, and they need to become comfortable with the innovation and confident in using it (Coletti & Russell, 1988; Fuller, 1969; Loucks & Zigarmi, 1981; Wiburg, 1991). Teachers' implementation of Internet use needs to be supported with time for and access to training that is meaningful and substantive, with administrative support, and with collegial sharing throughout the learning process (Budin, 1991; Hack & Smey, 1997; Honey & McMillan, 1993; Woodrow, 1991). Teachers' willingness to change traditional conceptions of teaching and learning also is imperative to success with Internet use (Gallo & Horton, 1994; Hack & Smey, 1997).

The study of teacher learning described here is the second phase in a longitudinal study investigating Internet use in Alberta schools. In Phase One (winter 1997), case studies were conducted in six schools in and around Edmonton. The focus of these initial case studies was on how schools use the Internet, how teachers learn to use it, and what educators and parents think about its value. The teachers in that study were excited by the potential of the Internet, but were also often overwhelmed and frustrated by its vastness and complexity.

Research Problem and Design

Phase Two of the research is examining more closely how teachers learn about and make use of the Internet as an instructional tool. Six collaborative research partnerships were established in the Phase One case study schools. Teachers who were experienced Internet users were partnered with graduate research assistants trained in the use of search engines and search strategies by the co-investigators prior to their contact with the schools. The nature of the collaborative projects was negotiated between the partners within two broad

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parameters. The partners would spend about 30 hours together over a three-month period and would focus on learning about and using the Internet.

The projects carried out by the partnerships varied. For example, in the elementary schools one partnership set up an Internet club with grade 4 to 6 students while another designed a grade 2 science unit on exploring liquids. In a junior high school the partners had students locate Internet websites on the *Titanic* as part of their grade 8 novel study, and in a high school the partners planned online units in grade 11 Religious Studies and Social Studies.

Data Collection and Analysis

Data were collected from September to December. Initially the graduate students met with their teacher partners to share their backgrounds and interests and to decide on a learning project they could do together. The graduate student partner followed the teacher's direction and provided assistance, support, and feedback in whatever ways the teacher preferred. The graduate students collected data through interviews and through field notes based on conversations and activities undertaken in the partnership. The partners also kept an online reflective journal, which they shared with each other and with the co-investigators. The journal entries were used as a record of and a catalyst for discussion and planning. During the study the partners explored their personal histories of learning to use technology and their preferred learning approaches. A content analysis approach is being used for data analysis.

Initial Findings

Reported here are the initial findings related to teachers' learning including their motivations for getting started on the Internet, their preferences for learning to use the Internet, factors supporting their learning, and factors hindering their learning.

Teachers in this study were motivated by curiosity about the Internet and the desire to learn about new approaches to teaching as well as by pressures from the media, school administration, job demands and student interest. The teachers' initial experiences with the Internet were varied, as were their personal preferences for how best to learn to use it. Some preferred to learn on their own, whereas others preferred to learn with other people. Those who preferred to work with others attended inservices, worked with a colleague mentor, and learned from their students. Those who were primarily self-taught felt that the most beneficial learning experiences occurred through trial and error, exploration, and professional reading. However, regardless of their preferred learning style, the teachers all reported needing time alone to learn as well as time to share with colleagues.

The following factors assisted learning: administrative, technical, and parental support; collegial sharing; home access to the Internet; being able to learn in the context of something relevant; and having a positive attitude toward change. Other factors hindered learning. For example, appropriate technology was not always accessible or working properly; there was little time for learning in teachers' daily lives; and inservicing was not always suitable to teachers' needs. In addition, some administrators and colleagues were skeptical about the value of the Internet and questioned teachers' spending time learning about it.

These findings are consistent with the research literature on teachers' implementation of new technologies. Teachers' use of the Internet is dependent on their attitudes toward the Internet as an instructional tool and their willingness to restructure their classes and rethink their approach to teaching. However, teachers require time as well as ongoing training and support in order to learn how to use the Internet and to incorporate it into teaching (Gallo & Horton, 1994; Gibson & Oberg, 1997; Honey & McMillan, 1993). The partnership approach to teacher learning, as exemplified in this phase of the study, provides the kind of teacher support and encouragement that is essential to incorporating an innovation into teaching.

Alberta Education (1997) has mandated the integration of computer technologies in the core subject areas by the year 2000. The initial findings of our research, however, do not suggest that such an approach to the adoption of innovation will be successful. As Wiburg (1991) states,

> if we have learned anything from the low success rate of movements for educational innovation ... it is that changes cannot be dictated from the top. Effective schools research reinforces the idea that change is most easily carried out at the individual school site, and within that site it is the teacher who can make or break any new program. (p. 119)

Future Studies

The findings from Phases One and Two of this longitudinal Internet study have been used to guide Phase Three, which involves a provincewide survey focusing on how the Internet is being used to enhance learning in Alberta schools. The survey, to be administered in the spring of 1998, will provide baseline data about the successes and problems with the use of the Internet as an educational tool. Funding is being sought as well for a replication of the Phase Two partnership study in the context of mandated implementation.

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The Alberta Journal of Educational Research *Vol. XLIV, No. 2, Summer 1998, 242-244*

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Indigenous Languages and Literacy: At Risk in the 21st Century

There is a growing concern about the loss of Indigenous languages in Canada, because few children learn them as their mother tongue, the languages are being used for limited purposes, and those fluent and literate are increasingly older (Blair & Fredeen, 1995; Fredeen, 1992; Saskatchewan Indigenous Languages Committee, 1991). Unless serious efforts are made to reverse these trends, Indigenous languages are at great risk of disappearing, and Indigenous children will not have these languages as a way to access the cultural and linguistic capital of the Indigenous world.

Language policy that supports and promotes Indigenous languages is important, but policy alone is not sufficient; it needs to be accompanied by language planning. Planning for a language is a complicated endeavor and needs to be done in a comprehensive, collaborative, and in-depth manner. The conceptual framework for planning, as outlined by Fishman (1991, 1994), Haugen (1985), and Ruiz (1984, 1988, 1990, 1994), has been used worldwide. This language planning model outlines five important stages that fall within two main categories. One category, known as *status language planning,* deals with the value and role of language; and the other, known as *corpus planning,* deals more specifically with the language itself and the details of how to build, rejuvenate, record, and provide materials for this process. In order for a language plan to be effective, one aspect cannot take place without the other; in fact, they need to happen concurrently. A good language plan also includes a schedule, a system of implementation, and a way to evaluate what is happening. The stages within these two categories include policy formulation, codification, elaboration, implementation, and evaluation.

The Study

The purpose of this study was to analyze existing language policies and the implications of these policies for the practices of language and literacy education in selected communities in northern Saskatchewan. It included a cross-section of Aboriginal languages and dialects. The Cree communities surveyed were Stanley Mission (TH dialect), Cumberland House (N dialect), and Red Earth (Y dialect). The Dene communities were Black Lake (T dialect) and LaLoche (T dialect), and the Dakota community of Wahpeton. The research design included interviews, observations in schools and communities, and an examination of policy documents. Seventy individuals were interviewed including directors of education, principals, designated Indigenous language

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teachers, Indigenous culture teachers, curriculum developers, guidance counselors, and bilingual teachers.

Findings and Implications

The research findings were mapped onto Fishman's (1990, 1991) Graded Intergenerational Disruptive Scale for Threatened Languages. This scale "gives a guide to how far a minority language is threatened and disrupted. The higher the number on the scale the more a language is threatened" (Baker, 1993, p. 57). This scale can also be used as a guide for planning and setting priorities in a community struggling to maintain the language. The following summarizes research findings for the six Indigenous language communities involved in the study.

Stage 8: This is the stage of language loss where only a few speakers of the language remain, which seems to reflect the case of the Wahpeton community. This is the most difficult stage, and a great deal of effort will need to go into language retrieval. It is important at this stage to record the language for later possible reconstruction. A community at this stage needs to start with ideological clarification, reestablish linguistic norms, use linguists' and Elders' expertise, implement their chosen code, solicit commitment, and make great effort to create a movement of support and concern.

Stage 7. The minority language is used by the older and not the younger generation, as is the case in Cumberland House. Pockets of linguistic resources are available, and if the community, through comprehensive goals clarification, decides that language retrieval is important, a full-scale effort in home, school, and community will be required. Special events alone will not do. Language planning needs to connect with daily family socialization patterns and ensure that intergenerational language transmission is occurring. The role that Elders can play here is crucial.

Stage 6. The minority language is passed on from generation to generation and used in the community. However, little else has been done to develop a wider range of contexts for language and literacy development. If this situation continues, it is little more than a matter of time until the language slips to Stage 7. This appears to be the case in communities such as Stanley Mission and LaLoche. The language is still spoken by children, but this is changing quickly. In these communities it is essential that the long-term goals are clarified and comprehensive language planning initiated. There is a need to support family and community intergenerational continuity through engineering a plan that focuses on family, neighborhood, and community building. This plan should draw on community strengths and conserve the existing linguistic resources while working toward extending them.

Stage 5. The community members are fluent in the mother tongue and have some degree of literacy in the minority language. Black Lake and Red Earth appear to be at this stage. In Black Lake the community members all speak Dene. A small number of people are literate in syllabics, and the Dene immersion program is the first school literacy effort. In Red Earth Cree is the dominant language among all generations. A few Elders are able to read and write in Cree, and they are beginning to look at bilingual and intensive Cree program options for their primary classrooms. In these cases there is a need to

add variety to the learners' repertoire from outside the familiar family and community situations. It is important to access more formal varieties and tap into the richness of language at events such as religious ceremonies or traditional practices. The range of support for literacy is important, and intergenerational language literacy activities are extremely valuable.

As far as could be determined by this research, the remaining four stages are not in existence in a complete form in a Saskatchewan Aboriginal community. This research has reinforced that of Foster (1982), the Assembly of First Nations (1992), Tschanz (1980), Burnaby (1985), Fettes (1992), and the Government of Canada (1990), which suggests that in order to save the Indigenous languages in Canada from possible extinction, action must be taken quickly. This is an enormous task, but with comprehensive planning and adequate financial support these languages can be saved.

Note

For complete research findings see Blair (1997).

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The Wholeness of the Individual: Linking Literacy and Health through Participatory Education

> Health doesn't just cover physical health. It covers mental and spiritual health. It is the wholeness of the individual. (Women's health group)

In 1996 a women's literacy and health project was initiated at an adult learning center in Edmonton. The main purpose of the project was to develop a participatory education program that integrates literacy development with health promotion. The research reported in these notes focused on women's reasons for participating in the project and on the effects of their participation. As research is still in progress, these notes report on initial findings.

Literacy, Health, and Participatory Education

Studies such as the International Adult Literacy Survey (Statistics Canada, 1996) have raised awareness about the incidence of low literacy among adults in Canada. Often links between low literacy and unsatisfactory health are made in relation to misreading medication labels or other instructions. Producing health information in clear language is a welcome response to this issue. However, the links between low literacy and poor health go well beyond inability to read instructions.

Income is the single most important determinant of health (Federal, Provincial and Territorial Advisory Committee on Population Health, 1994), and income is related to literacy (Statistics Canada, 1996). Adults with low literacy have fewer options for adequately paid employment than those with higher levels of education; many live with incomes at or below the poverty line (National Anti-Poverty Organization, 1992). Low income is related to poor nutrition, smoking, stress, and lack of physical exercise as well as to lack of access to health information and resources (Ontario Public Health Association and Frontier College, 1989; Whitehead, 1991).

Nurturing a healthy population requires a societal commitment so that all people have adequate income and housing, opportunities for education and employment, healthy working conditions, and access to health services. However, individuals can take some control over their health and contribute to the well-being of their family, friends, and communities. This is one aim of health promotion.

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Although health promotion workers are becoming more aware of the incidence and effects of adult low literacy in Canada, health promotion tends to be directed toward people with adequate literacy and related education (Ontario Public Health Association and Frontier College, 1989). Print resources and mainstream educational methods do not reach people who do not read easily, who are not at ease in mainstream educational settings, or who have different background knowledge about health.

The Ontario Public Health Association and Frontier College (1989) recommended enabling people with low literacy skills to help themselves and suggested using participatory education approaches. In such approaches participants define their own learning needs and share and build knowledge together. Integrating health promotion into literacy programs builds on relationships established between participants and their teachers (World Education, 1996).

The Literacy and Health Program

The literacy and health program at the adult learning center was developed over two 10-12-week periods in the spring and fall of 1996. Topics identified by the participants and addressed during the program included stress, saying no, anger, diet and exercise, menopause, and living healthily on a low budget.

Fourteen women participated in program development, eight of whom took part in both sessions.[1] The "health group"—as the women called themselves—continued to meet during the winter of 1997 and then merged with the women's group at the centre. Six of the women who were in the health group continue in the center program at this time.

Objectives for the program included (a) helping women learn skills and strategies to access information and resources needed to make positive changes that can improve health; and (b) helping women to learn reading, writing, and related language strategies they can use to access, assess, and apply health information resources. This research was related to the first objective, in particular to whether participants made changes that can improve health.

Participants were interviewed at the beginning and end of the first period of program development and at the beginning of the second period. Interviews were focused on reasons for participating in the program, self-assessment of health, accessing information, changes in health practices, and response to the program. Toward the end of the second period the researcher presented themes from the interviews to the group of women and asked them to identify other issues that had arisen.

Follow-up interviews with five women who took part in the project were conducted in spring 1998, and three or four additional women will be interviewed, depending on their availability. Results of these follow-up interviews have yet to be analyzed.

Initial Findings

Information from the second and third interviews was compared with data from the first ones. Women's responses point to learning and change in diet and exercise, expressing anger, managing stress, self-assertion, sharing mutual support, and recognizing the links between health and social conditions.

Some women had been practicing healthy eating and exercise habits at the start of the program. Others named diet and/or exercise as topics of concern. At the end of the program some women said they had increased their exercise and had made changes in their diet, such as eating less fatty food.

When the program began women indicated that they recognized links between stress and health. After the program they indicated that they were learning about and getting better at coping with stress. They were also becoming more confident in asserting themselves. Learning to say no to others' demands was an important factor for them. Although saying no was still difficult, women reported that they were able to say no more often than at the start of the program. Learning to express anger and other emotions in healthy ways was also an important topic for most of the women. After the program a number said that they were committed to learning how to control their anger or to express it in ways that were not hurtful to others.

Women tended to discuss health in terms of their personal behaviors at the beginning of the program. Afterward they indicated a more conscious recognition of the links between health and low incomes. Women also placed high value on making connections with each other and sharing support with others in the group.

Conclusion

All the women who participated in the literacy and health project were living on low, fixed incomes. For various reasons a number of them did not have immediate options for increasing their income, and living with low income contributed to stress and other problems with health. Although an increased income would contribute to women's well-being, participating in the health project also had positive effects. The project provided important social support for the women who participated. According to some health experts, being part of a social support network may be as important to promoting health as reducing certain established risk factors (Federal, Provincial and Territorial Advisory Committee on Population Health, 1994). Through the project women also developed knowledge and skills to improve some aspects of their health and supported each other in making changes.

Note

1. The program was field tested in four other sites in 1996-1998. A handbook for the program will be published in summer 1998.

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